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PC HOW-TO GUIDE

SPECIAL ISSUE • WINTER 2006

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Release Notes

Unleash Your Inner Geek

When the aliens landed in Egypt and presented their plans for the Great Pyramid to the populace, I'm guessing they were met with more than a little skepticism. I mean, forgetting the fact that, well, the architects were *aliens* and all, Pharaoh Khufu's foremen must have been more than incredulous: "You want us to build *what*?!"

Well, the Egyptian king naturally liked the idea of a such a grand tomb and, of course, green-lighted the project, and the rest is history—the worker-bees got it done, one massive, two-ton block of stone at a time, one step at a time. It took 20 years or so, and the lives of untold thousands, but you can't argue with the results. And I'm betting the members of the construction detail were quite pleased with, and proud of, their efforts. (At least the survivors were.)

You may share their initial brand of skepticism when some "PC geek" tells you that you should upgrade your PC, set up a secure wireless network in your home, or construct your own Blog. Yeah right, you say—such projects are best left to "that kid in high school" that wore the thick glasses and went on to M.I.T. Right?

Wrong. We're here to tell you that not only can you do projects like these, but they're also far easier than you may think to complete—if you follow the Egyptian's "one step at a time" mantra, and our explicit blueprints (no aliens required). Since you're reading this, it's a good bet you're at least curious about the steps involved with tinkering with your PC's innards or setting up WPA on your wireless router. Now it's time to turn that curiosity into action.

We've assembled more than 40 do-it-yourself tech projects, some that you can complete in a few minutes and others that will take hours. How many you decide to tackle is, of course, up to you, but you now hold in your hands the power — our alien blueprint, if you will — to unlock the high-tech handyman (or -woman) that's hidden inside us all.

It's time to roll-up those sleeves and "get dirty" with the comfort of having our resident team of experts (mostly comprised of "that kid" in high school) guide you every step of the way. When you finish one, or two, or three projects, give yourself a pat on the back—and then just try to stop.

—Stephen P. Klett Jr.
sklett@maximumpc.com

P.S. If you still need "proof" that the aliens are responsible for the Great Pyramids, go to www.outerworlds.com/likeness/aliens/aliens.html. What more do you *need*?

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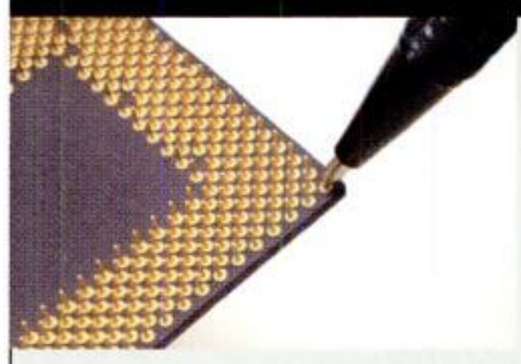

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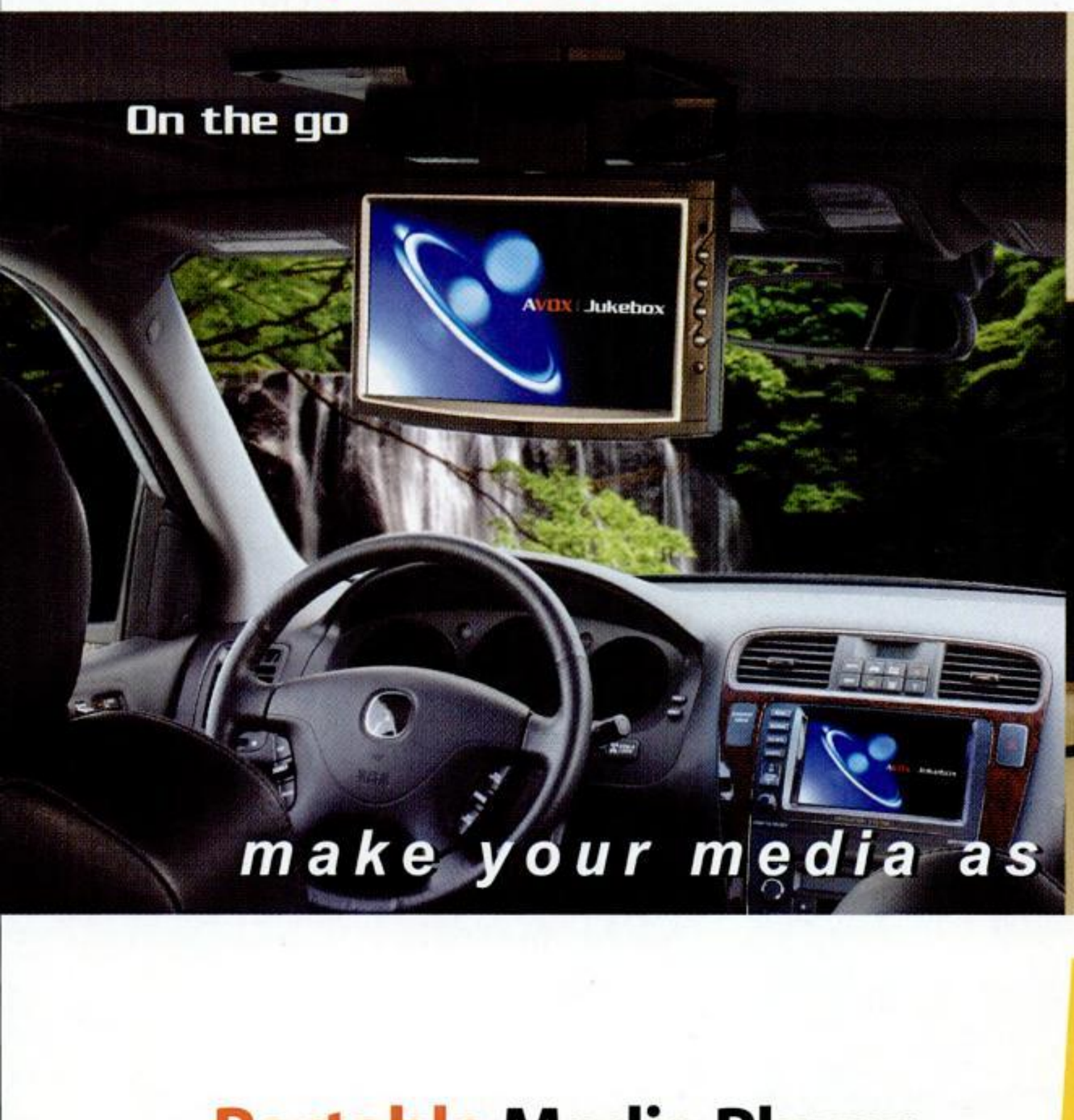

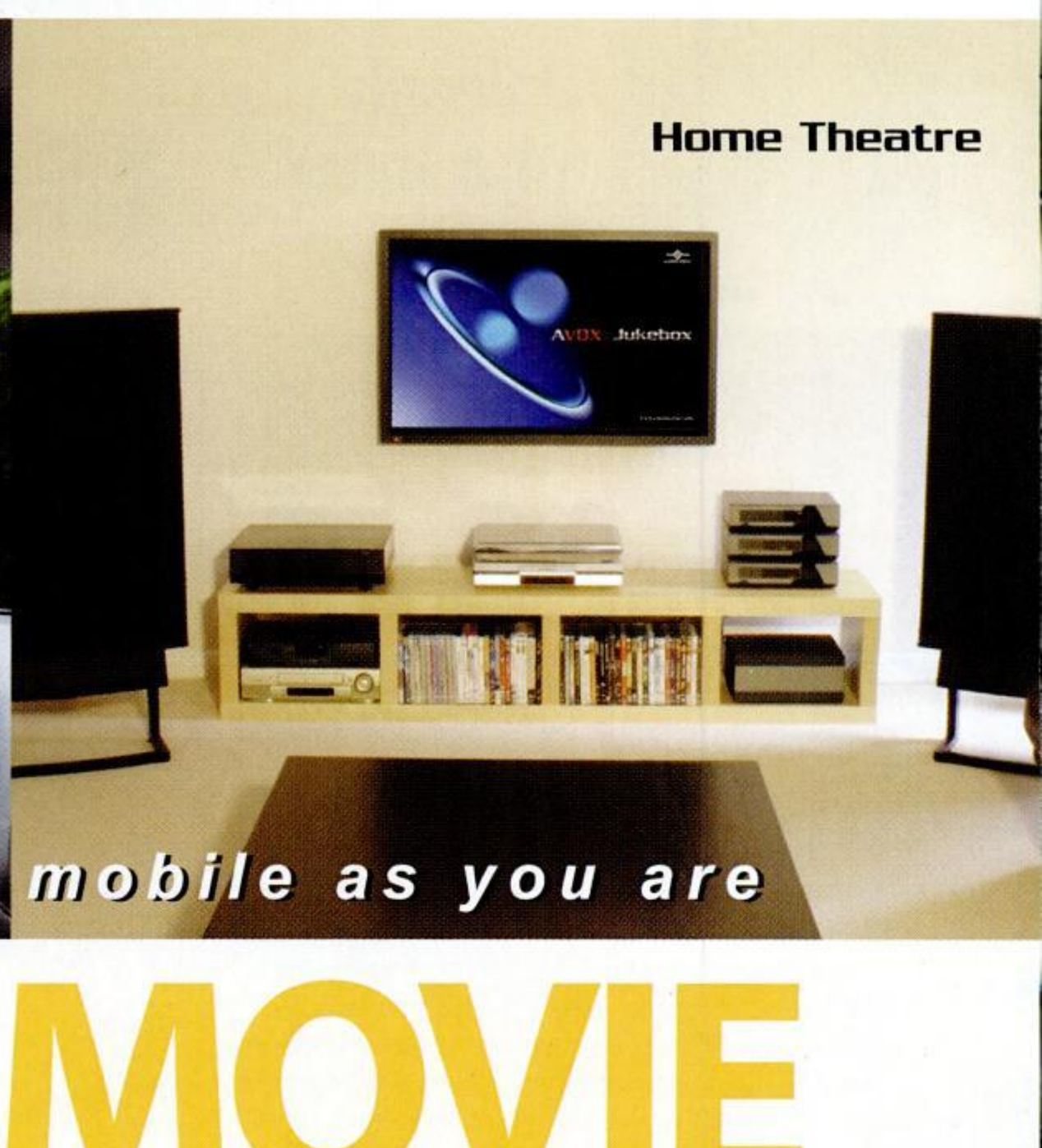

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The Future Network plc is a public company quoted on the London Stock Exchange (symbol: FUTR).

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REPRINTS: For reprints, contact Ryan Derfler, Reprint Operations Specialist, 717.399.1900 ext. 167 or email: futurenetworkusa@reprintbuyer.com

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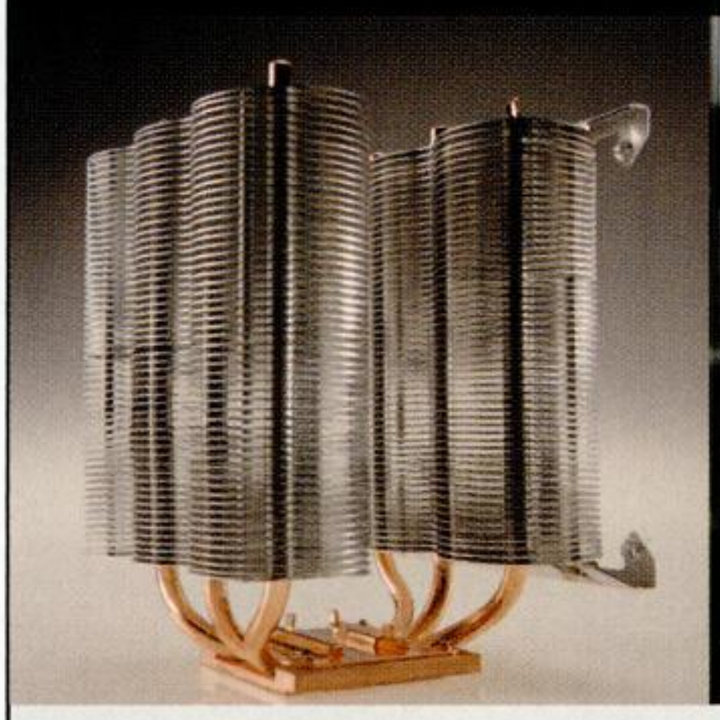

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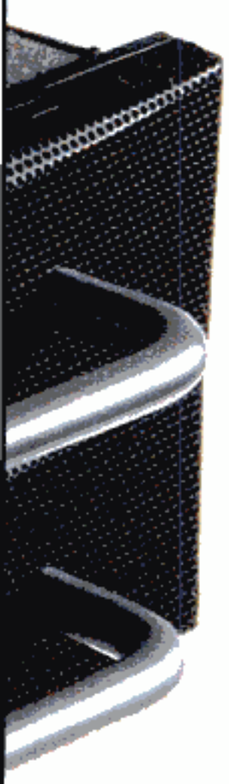

These 22 how-to projects will help you get the most from your computer

BY THE MAXIMUM PC STAFF

It's been said that we use only about five or ten percent of our brain's potential (and celebrities get by on even less than that). The same holds true for our PCs and gadgets. Even power users miss out: few take advantage of all the cool things they can do, either out of ignorance or simply because they don't know where to start.

This is the starting point.

Over the next 10 pages, we'll show you 22 *Maximum PC*–approved how-tos. This is the best collection of bite-size projects we've ever assembled—they're culled from a year's worth of monkeying around in the Lab. We'll show you how to suspend a flat panel over your desk, automate your home *Jetsons*-style, find a wealth of hidden information on the Internet, set up your own blog, and turn your USB key into a heiny-saving travel kit. But wait, there's more! We'll also show you how to save yourself 497 bucks with a mechanical pencil, catch a broadband thief, and teach your iPod to do double duty as a pimped-out PDA.

But remember—these are only starting points. Feel free to tweak our recipes and experiment with our methods! If you find an even better way to get things done or have tips of your own, let us know at **howto@maximumpc.com**. We'll run the best suggestions in an upcoming issue.

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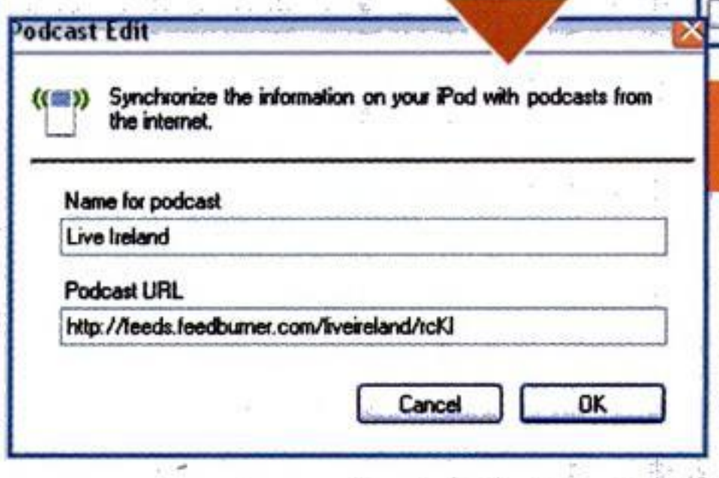
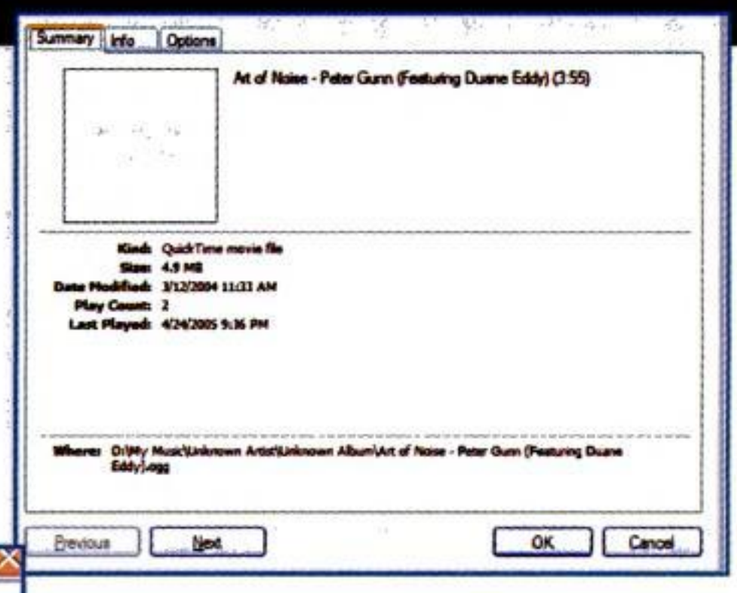
GET MORE FROM YOUR IPOD

iPod Agent automates the process of syncing your iPod with anything—your calendar, contacts, and news feeds.

All you need is a URL, and *iPod Agent* does the rest for you.





As you can see from this shot, *iTunes* thinks this OGG track is really a standard QuickTime file. Devious!

Play OGG Files within iTunes

iTunes is a great media player. OGG Vorbis is a high-quality and open-source audio compression codec. *iTunes* doesn't support OGG files. This makes us angry. But don't fret—you can enable playback of OGG files within *iTunes* and it won't cost you a dime!

Go to **http://qtcomponents.sourceforge.net/** and click Download in the menu on the left. Download the latest version of Win32-OggVorbis.zip. Extract the file oggvorbis.qtx and transfer it to C:\Windows\system32\QuickTime. Launch *iTunes*. Drag your OGG files to your *iTunes* library. Play your OGG files and swivel your hips.

Yes, OGG files are slow to load from within *iTunes*, *iTunes* still won't recognize your OGG tags, and this trick doesn't allow you to encode OGG Vorbis files from within *iTunes*... yet. Keep checking the QuickTime Components site—these features will turn up eventually.

If you've got an iPod, *iPod Agent* (**www.ipodsoft.com/index.php?/software/ipodagent**) is your new best friend. This free (donations cheerfully accepted) utility automates the otherwise tedious task of synchronizing all your important data to your iPod, including your *Outlook* Calendar and Contacts, RSS feeds, and even podcast subscriptions! Setup couldn't be easier; to sync your *Outlook* Contacts, for example, just click the Contacts button, and then click the check-box next to each folder or folders you'd like to keep synchronized. Click Sync Now and... well, that's it!

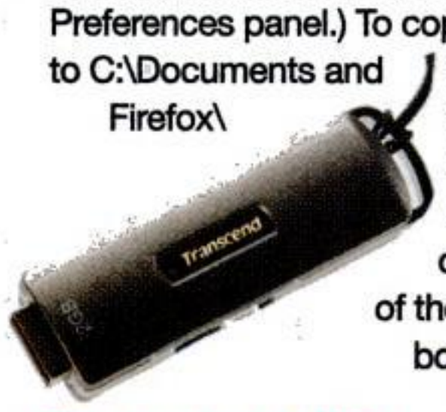
Keeping your iPod filled with fresh Internet grub is just as easy. For RSS feeds and podcasts, all you have to do is name the feed and then enter its URL. Every time you sync your iPod after that, *iPod Agent* will stuff it full of goodies.

MAKE A USB KEY TRAVEL KIT

USB keys, or thumb drives, are super handy for carrying files from one place to another. Here's how to configure your wee drive so you can use it in any computer to access the web without leaving a trace of your presence behind. The secret is *Portable Firefox*.

The first step is to download and unzip *Portable Firefox* (**http://johnhaller.com/jh/mozilla/portable_firefox/**) in your USB key's root folder. This will create and maintain a stand-alone *Firefox* install—including a separate profile—on your thumb drive. Your cookies, history, and favorite websites will be stored on your portable drive, instead of the host PC. Shut down your normal *Firefox* app and then launch *Portable Firefox* using the portablefirefox.exe file (*do not* use the firefox.exe file, or it will launch the normal *Firefox* browser).

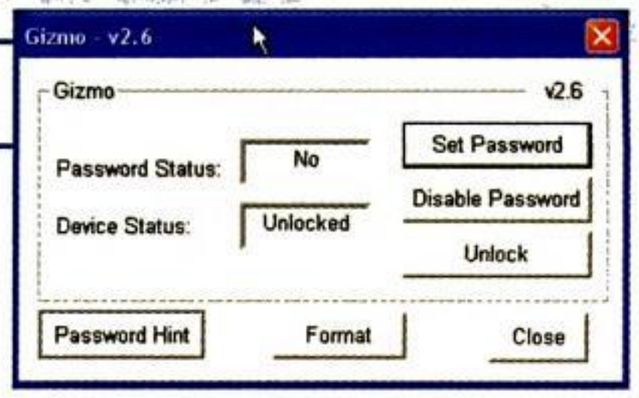
You can copy much of your local profile into *Portable Firefox*, but the developer suggests you turn off cache in order to conserve space. (Disable cache in the Security section of the app's Preferences panel.) To copy your profile to the thumb drive, navigate to C:\Documents and Settings\[user]\Application Data\Mozilla\Firefox\Default and copy the contents to the same folder on your USB drive. If *Portable Firefox* fails to launch or hangs after copying your profile, delete the contents of the Default folder and try copying only the bookmarks.html file into it.



You can use a USB thumb drive for much more than just toting data.

There are a few limitations to *Portable Firefox*. Java apps won't work unless your host machine has a working Java install. Plus, it's vitally important that you treat your thumb drive as though it's been infected with a virus every time you use it in a strange machine. If at all possible, run a virus scan on your USB drive before running any applications on any *other* PC.

Once you've set up your portable browser, you can also create digital backup copies of important documents (driver's license, passport, credit cards, and so on) using a scanner, copy the images to your USB memory, and then encrypt the files using a program such as *Steganos Security Suite*.



Many thumb drives, including the Crucial Gizmo 2.0, let you create a password-protected partition on the device.

If your keychain drive doesn't have built-in encryption tools, you can use third-party software like *Steganos Portable Safe*.

***Portable Firefox* on a USB thumb drive lets you browse the web in libraries and cafes using your own settings.**

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WALL-MOUNT YOUR LCD

Most flat panels are relatively light, but none are featherweights, so it's important you use the proper mounting hardware. If your walls are made from drywall, don't assume that simple expansion bolts will do the job. Over time, even these heavyweight fasteners can pull through drywall and drop your costly display right on the floor—or whoever is unfortunate enough to be standing beneath it when it goes.

Television and computer monitors that adhere to the VESA standard—read: most of them—will have four pre-threaded holes on the back of the display. When you're shopping for a mounting kit, you'll need to choose between an elaborate but bulky mount that will provide *beau coup* viewing angles, and a low-profile mount that sacrifices mobility. Prices will range from $50 to more than $500, depending on the size and weight of your display.

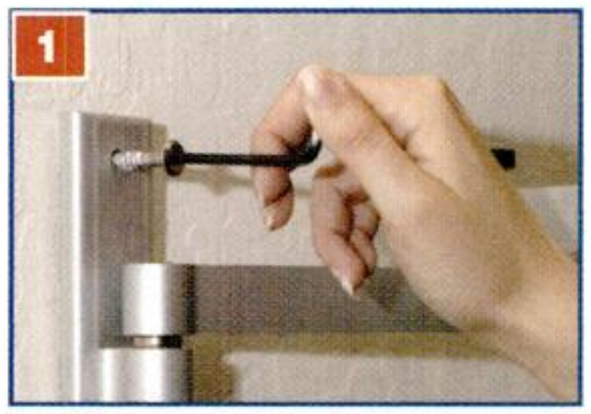
Nearly all kits ship with two elements: one that connects to the back of the display, and a second part that bolts to the wall.

1 Once you've decided where to place your monitor, use a level and mark the wall to make sure the mounting holes you're about to drill will be balanced.

2 If you have drywall construction, secure the mounting bracket to the centers of one or more wooden studs. (Use a stud finder to locate and mark the outer edges of the stud, drill a pilot hole in the center of your marks, and secure the bracket using the included woodscrews.)

3 If your walls are concrete or brick, drill holes in the material—not the mortar between bricks—then slide masonry expansion sleeves into the holes, slide lag bolts through the holes in the mounting plate, and screw the bolts into the sleeves. The sleeves will expand and fill the holes to provide a secure anchor.

4 Once you've mounted the bracket to the wall, secure the other part to the display itself (to do this, lean the display against a wall, rather than laying it on its face, to prevent damage to the glass). Now you can secure the display to the wall with the hardware provided.



Attach the mounting bracket to your wall. Make sure you anchor it securely, or it could fall and take part of your wall with it!

Secure the mounting bracket to the LCD. Most displays will have universal VESA-standard mounts, but very large units might require something more complex.

USE HIJACK THIS TO REMOVE SPYWARE

Sometimes, the best automated spyware-removal utilities fail. Either they don't know how to remove the latest variant of *CoolWWWSearch*, or an obviously infected machine shows up with no known spyware. That's where *Hijack This* (www.merijn.org) comes in.

At first glance, *Hijack This* seems like the most confusing spyware-removal utility ever made. Rather than scanning your PC and then giving you a big, red button labeled "Remove Spyware," it forces you to weed through scores of legitimate entries to determine which are spyware, and which aren't. The person who wrote the software even claims, "You're not expected to understand all the results [of the scan]." Uh oh. The good news is that it's not too complicated once you understand how the utility works. That's where we come in.

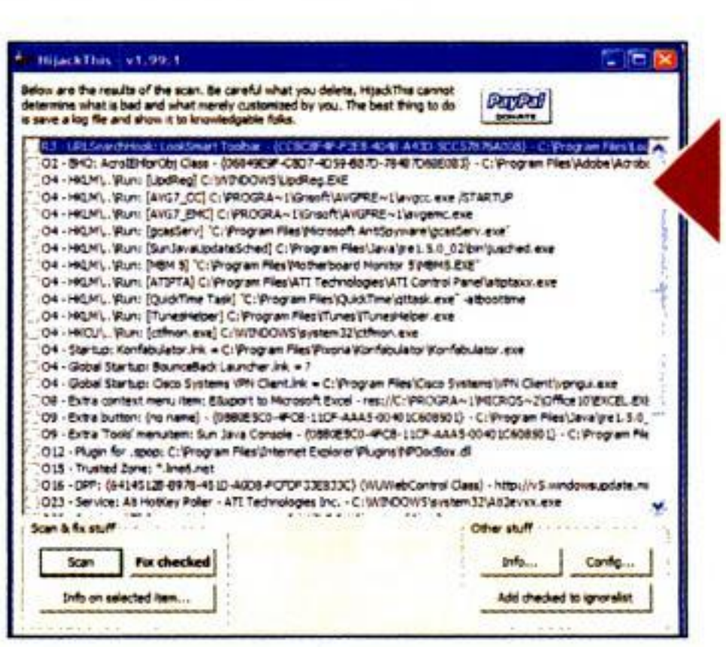
Hijack This scans your PC and provides you with a handy list (and text-based log file you can peruse offline) of all the places where a program can configure itself to automatically start in Windows. The entries are sorted by type, and each one includes a description of the type of file it is. You have to go online to find out what the descriptors mean, but it's worth the hassle, as *Hijack This* gives much more detailed info than any other utility we've tested.

For example, after a list of all the currently running apps, we come to a line break and then the description "R3." According to the online "decoder" (available at www.spywareinfo.com/~merijn/htlogtutorial.html), this means the listing is an "IE start page or search toolbar." If you normally use the popular site www.maximumpc.com and the listing says www.ratemykitten.com, you know your browser has been hijacked. Simply check the item and then click "fix checked" to delete the entry from your PC's Registry.

To finish this process, simply follow the online decoder and delete the keys you think are spyware. If you're not sure what the entries mean, post your log on the *Hijack This* forums and have an expert evaluate it for you.

```
O8 - Extra context menu item: E&xport to Microsoft Excel -
res://C:\PROGRA~1\MICROS~2\Office10\EXCEL.EXE/3000
O9 - Extra button: (no name) - {08B0E5C0-4FCB-11CF-AAA5-00401C608501} - C:\Program
Files\Java\jre1.5.0_02\bin\npjpi150_02.dll
O9 - Extra 'Tools' menuitem: Sun Java Console - {08B0E5C0-4FCB-11CF-AAA5-00401C608501} -
C:\Program Files\Java\jre1.5.0_02\bin\npjpi150_02.dll
O12 - Plugin for .spop: C:\Program Files\Internet Explorer\Plugins\NPDocBox.dll
O15 - Trusted Zone: *.line6.net
O16 - DPF: {64145126-8978-451D-A0D8-FCFDF33E833C} (WUWebControl Class) -
http://v5.windowsupdate.microsoft.com/v5consumer/v5Controls/en/x86/client/wuweb_site.cab?
1104467295515
O23 - Service: Ati HotKey Poller - ATI Technologies Inc. -
C:\WINDOWS\system32\Ati2evxx.exe
O23 - Service: ATI Smart - Unknown owner - C:\WINDOWS\system32\ati2sgag.exe
O23 - Service: AVG7 Alert Manager Server (Avg7Alrt) - GRISOFT, s.r.o. -
C:\PROGRA~1\Grisoft\AVGFRE~1\avgamsvr.exe
O23 - Service: AVG7 Update Service (Avg7UpdSvc) - GRISOFT, s.r.o. -
C:\PROGRA~1\Grisoft\AVGFRE~1\avgupsvc.exe
```

The report window for *Hijack This* can be a bit difficult to read, so the app reproduces the list in a text document, which you can also post online for assistance.



Though it's certainly not user-friendly, *Hijack This* lets you manually delete spyware entries that other utilities are incapable of abolishing.

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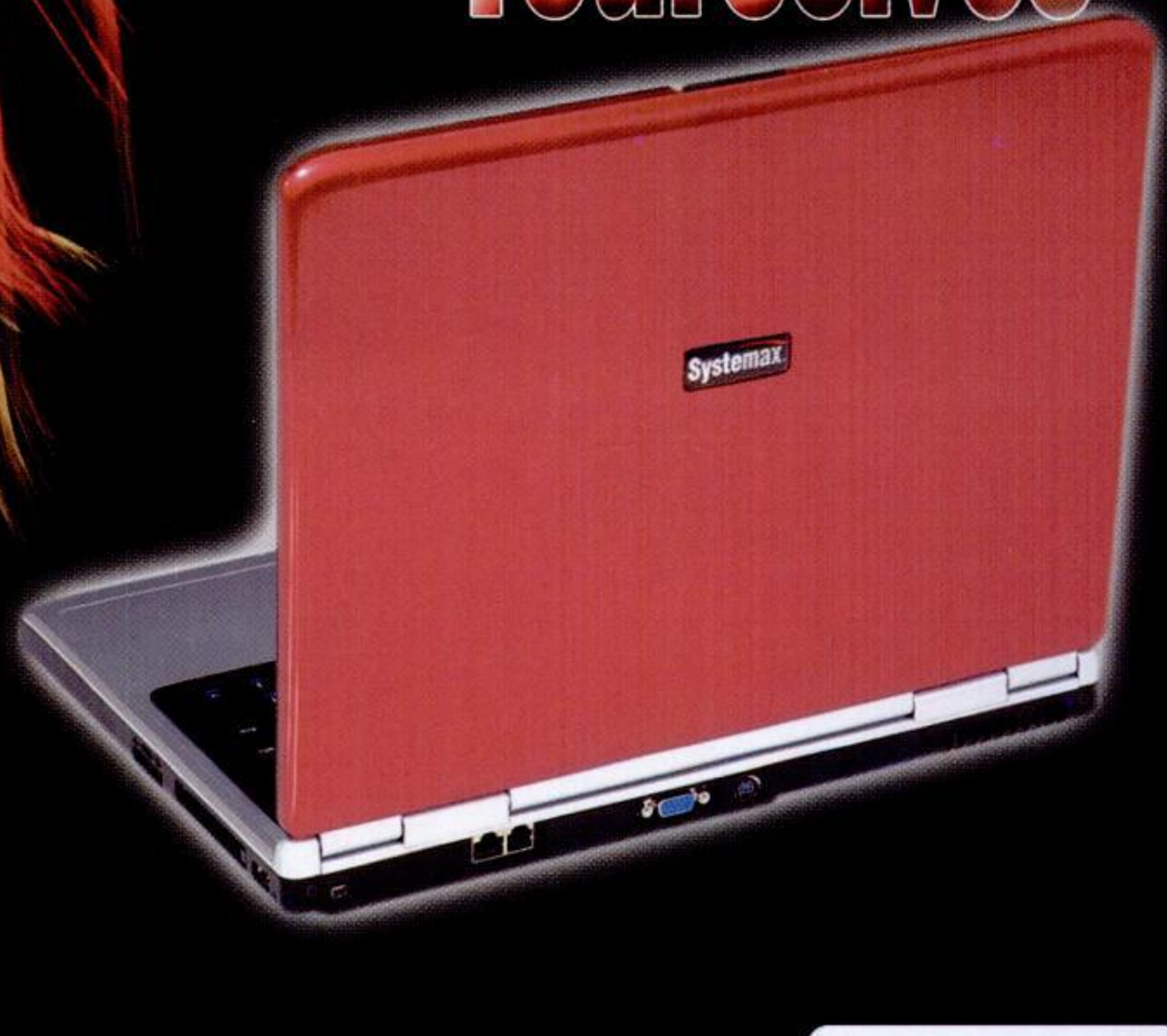

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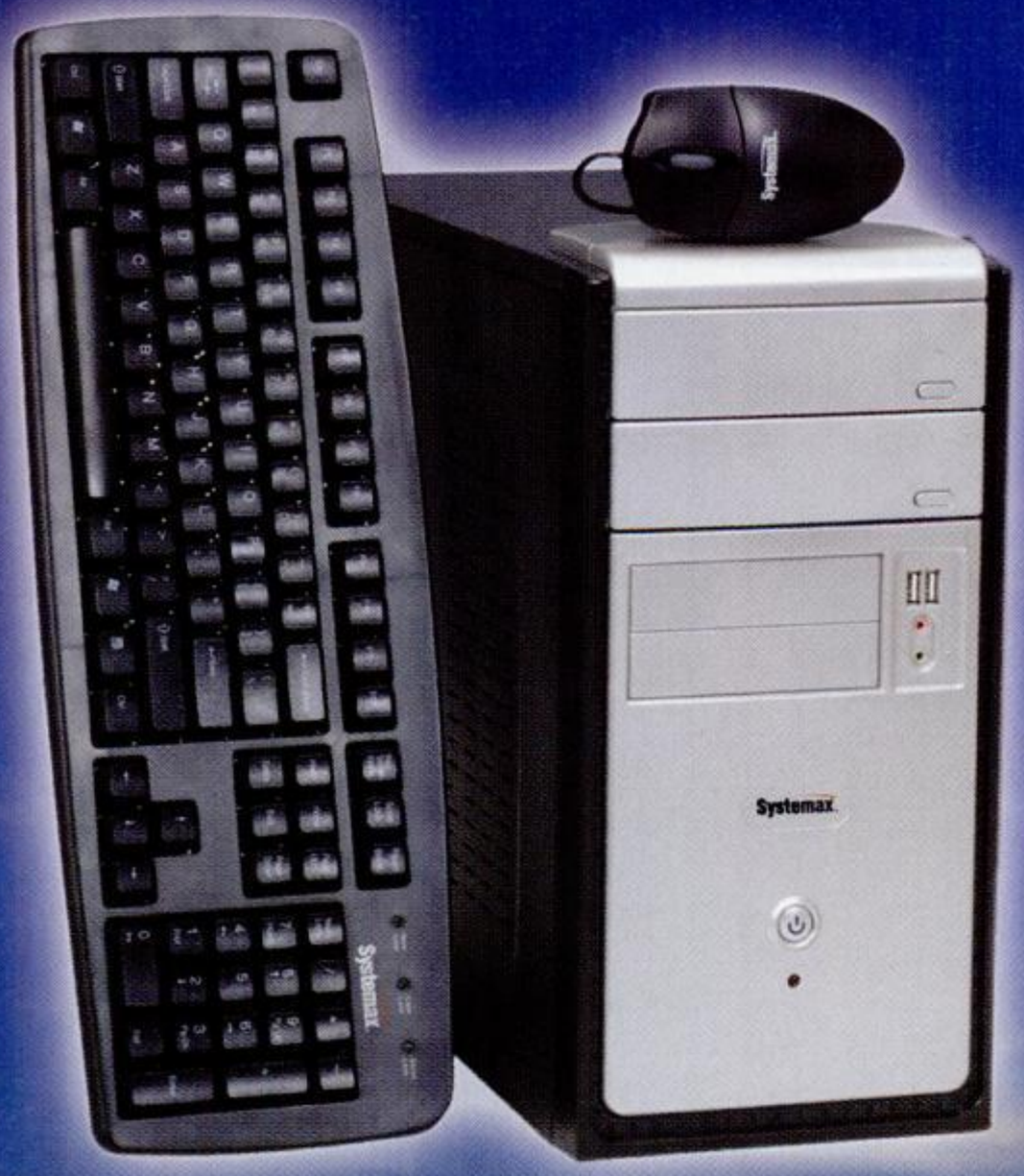

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Get the Most from Your New LCD Monitor

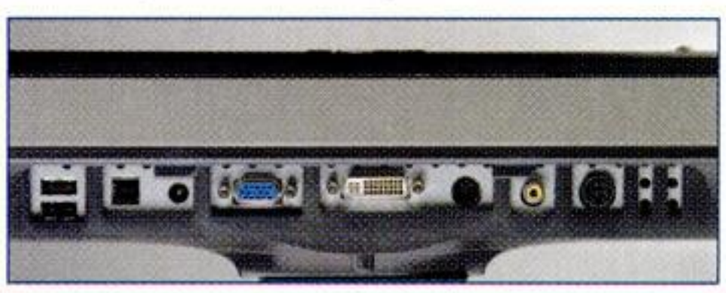
So you finally took the plunge and purchased a brand-spanking-new flat panel. Good for you! But before you pat yourself on the back, there are a few things you should do to ensure an optimum experience.

GIVE YOUR NEW DISPLAY A THOROUGH TEST DRIVE

If there is anything wrong with the LCD, you want to catch it right away in order to take advantage of the resellers' quick-exchange program, or at least have it repaired within the warranty period. Here's how to give your LCD the once-over:

STEP 1: Once you pull the LCD from its packaging, make sure you've received all the "included" parts and cables, and check the panel for any surface flaws—scratches, nicks, discolorations, etc.

STEP 2: Test *all* of the display's various inputs—DVI, VGA, S-video, etc.—to make sure they are functioning.



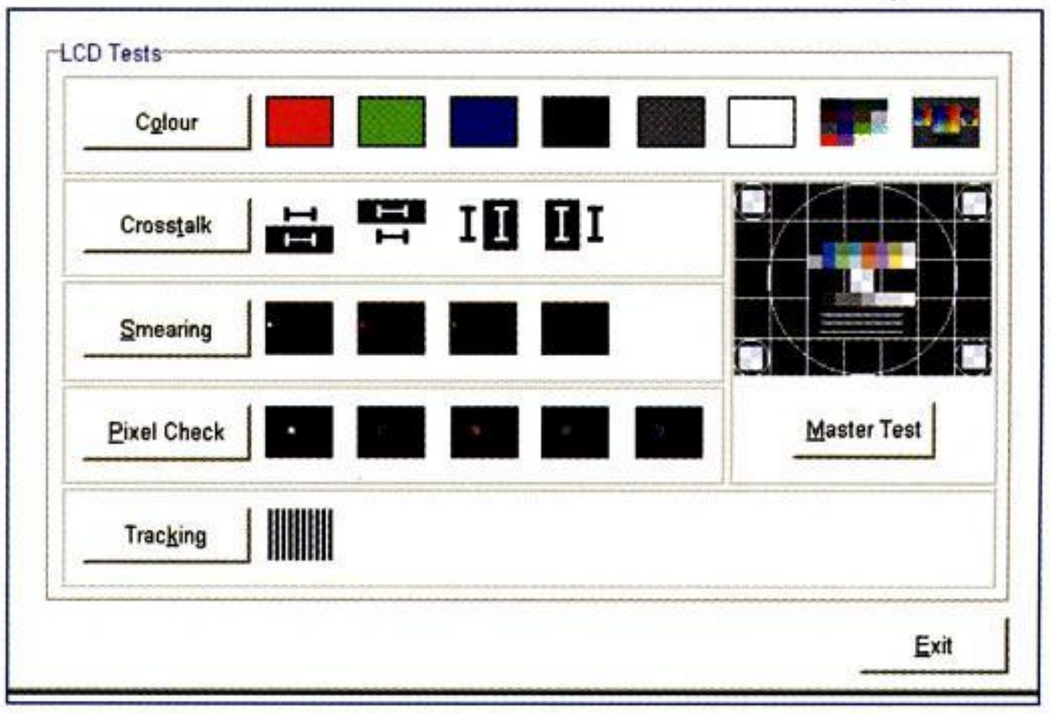
Better to check all your inputs while you can still exchange the display than to find one not working next year when you really need it.

STEP 3: You'll want to check the screen quality, of course, but only after the monitor has been running for at least 30 minutes. It can take that long for a monitor to warm up to its peak performance. It's also helpful if you conduct your evaluation in a dark environment—ambient lighting and glare can affect what you see onscreen.

Install the *Monitors Matter CheckScreen 1.2* utility included on our disc (or download it from the Meko Ltd. home page (**www.benchmarkhq.ru/english.html?/be_monitor.html**). Launch the app, and click the LCD Display tab. Cycle through all the solid-color test screens. In combination, these screens will reveal the uniformity of the screen's back-light (look for spots that appear dimmer or brighter), shading irregularities (pay particular attention to the corners and edges of the panel), and any intensity variations in the primary colors.

These screens also give you an opportunity to check for bad pixels. By systematically scanning the various colored screens up close, from side to side and up and down, you're sure to discover any pixels that are stuck in either an on or off position. (You'll notice that the application provides separate test screens for this purpose, but we find the solid screens just as effective.)

If you plan to use your LCD for gaming, use the Smearing screens to check for any problems the screen might have reproducing fast-motion content. Unacceptable results might not mean the LCD is faulty, *per se*, but you might still be able to exchange the LCD for a more gamer-friendly model.



***Monitors Matter's* LCD tests will reveal any flaws in a screen's quality.**

DISPOSE OF YOUR OLD CRT

Assuming your CRT is no longer of use to you, it's only right that you dispose of the honking beast responsibly—a street corner or dumpster is *not* an option.

If the monitor is still functioning, donate it to a charitable organization such as Goodwill Industries; if it's not, we know of no better recycling program than Dell's. Regardless of the brand, Dell will take your old PC gear off your hands for just $10 per 50 lbs. Go to **www.dell4me.com/recycling** for more information.

FINE-TUNE YOUR LCD

Once you're satisfied that your flat panel isn't defective, take the time to familiarize yourself with the onscreen controls. Try out the various presets and/or color temperature options with different types of content. Don't be afraid to experiment—you can always revert to the Auto/Factory preset if you screw up.

Use the *Monitors Matter* Master Test pattern as a basis for manual adjustments. The large outer frame should fill the whole screen, all the boxes within in it should appear perfectly square, and the circles should appear perfectly round, not oval. This is a test of the screen's aspect ratio; if necessary, make adjustments using the display's Size, Position, or Centering controls, and make sure you're running the monitor at its native resolution.

The background of the screen should appear black, not dark gray. Decrease the Brightness to achieve this result, trying not to lose the darkest gray on the color bar. Similarly, use the Contrast control to achieve an acceptable white without washing out the lightest gray block.

Don't be afraid to fiddle with the onscreen controls. If you muck something up, you can reset to the default settings!

The *Monitors Matter* Master Test screen will help you tweak your picture quality.

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AUTOMATE YOUR HOME

Imagine coming home, pressing a button on your garage-door opener, and having that one key-press turn on your kitchen lights and tune your television to the evening news. We'll show you how to set up a simple and inexpensive home-automation system using your PC, a few pieces of software, and control modules that plug into your existing outlets.

Unlike data networking, there is no Wi-Fi or Ethernet-like standard that guarantees interoperability between different home-automation hardware (Z-Wave, X10, and Insteon are the three most popular types). We're using Zensys Technologies' Z-Wave system in this example, which uses radio frequencies to broadcast commands from a handheld remote to modules that plug into existing electrical outlets. Plug your lamps and appliances into these modules and you can control them using the remote. You can also replace your wall switches with Z-Wave-compatible dimmer switches.

As convenient as a handheld remote might be, its functionality and ease of use are limited by its small screen and paucity of buttons. Bring your PC into the home-automation picture, and you can do almost anything. To that end, HomeSeer Technologies' USB module with PC software not only resolves the standards issue (it supports the Z-Wave, X10, *and* Insteon protocols), it can also handle complex tasks, such as scheduling events and sending e-mail alerts whenever it detects unexpected activity in your home. It will even allow you to remotely control connected devices in your home via the Internet.

SIMPLE AUTOMATION

The HomeSeer starter kit ($200) comes with a Z-Wave USB controller, a handheld remote control, one lamp module (with built-in dimmer), and *HomeSeerSE* (the "lite" version of the *HomeSeer* software). *HomeSeerSE* will support up to eight devices and 32 events. Additional modules for indoor (or outdoor) lamps and appliances sell for between $40 and $45, or you can purchase less-obtrusive wall switches with built-in dimmers and Z-Wave controllers for about the same price (roughly twice the price of a standard dimmer switch).

Upgrading to the full version of *HomeSeer* ($100) expands support to an unlimited number of devices and events. It also adds support for X10 and Insteon devices, and universal support for infrared devices (such as your A/V gear), voice-recognition, scripting, and much more. Add the Z-Wave Thermostat kit ($250) and you'll even be able to monitor and control your home's heating and air-conditioning systems.

With *HomeSeerSE* software and Z-Wave-compatible device controllers, you can control your entire home-automation system via the web.

1 **To get started, plug a lamp module into a wall socket and plug the device you wish to control into the module. (The lamp modules are designed for low-power applications, such as incandescent lamps. If you need to control something else, such as a coffee maker or a stereo, you should use an appliance controller.)**

2 **Hold the remote control within 12-inches of the wall module, and press and hold the "1" button on the remote until the message "Press button on unit" appears on its LCD. Now, release the button on the remote and press the button on the lamp module. This will synchronize the two devices, so that pressing "1" on the remote now turns on the lamp module.**

3 **Repeat this process for each module you wish to control with the remote, assigning each module to one of the remote's six "speed" buttons.**

4 **Once you've programmed all the modules into the remote, plug the USB controller into your PC and install the HomeSeer software. The HomeSeer wizard will step you through a similar sequence of events to transfer the data from the handheld remote to the USB interface.**

Once you've done that, you can control any Z-Wave device using either your PC *or* the remote. The HomeSeer system will automatically synchronize itself to the network, so it's aware of every module's status (on, off, dimmed, etc.).

WHAT YOU'LL NEED

Intermatic's HA04 is a weatherized plug-in module suitable for outdoor use (dry, damp, or wet conditions). It can handle up to 1,000-watt tungsten lamps.
$45, www.intermatic.com

The price of Intermatic's Z-Wave in-wall switch/dimmer is only about twice that of a normal switch/dimmer, and it's much more aesthetically pleasing than a plug-in module.
$43, www.intermatic.com

A Z-Wave home-automation network relies on a single master remote control, such as this Sylvania model SH50201.
$39, www.homeseer.com

Sylvania's SH50330 is a typical Z-Wave plug-in module, which can handle up to a 300-watt lamp.
$45, www.homeseer.com

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RESEARCH A VENDOR BEFORE YOU BUY

Though we employ a trained watchdog to keep shady vendors at bay, the Dog can't help everyone. It's critical that you do some research on your own before handing your greenbacks to an unknown vendor.

In the past we've recommended Resellerratings.com to find out what other folks think of a specific company, but we're beginning to grow a bit suspicious of that site. A good way to confirm your vendor's Resellerrating score is to check in with the Better Business Bureau (www.bbb.org). Just type in the name or URL of your vendor and—bam—you can find out how many complaints have been levied, and when the complaints were made. We followed up on a defunct company the Watchdog had reported on several months ago. As it turns out, this company has an overall grade of F from the BBB. We also strongly recommend visiting manufacturers' forums and looking for grousers, as well as checking out the *Maximum PC* forums (www.maximumpc.com/forum) to see if other forum-goers have had good (or bad) experiences with the vendor in question.

After perusing the BBB's website pre-purchase, we see this company has received nine complaints in the past three years. Hmmm, maybe we'd better shop elsewhere.

Quickly Color-Correct Your Images

This scanned print image (A) from the early 1990s is typical of a poor scan; it has shifted blue, or "cold," and has no pop. To edit the photo, we'll use Google's *Picasa 2*. It's fast, neat-looking, and best of all, it is included for free on this issue's disc!

If you're in a hurry, you can try *Picasa 2's* Auto Color (B). It does a fair job, but the "fixed" photo still looks a little flat to us. So, hit Undo and click the Tuning tab. The fourth slider lets you control the color temperature. Sliding it to the left makes the image colder (bringing out the blues), while sliding it to the right warms up the pictures (enhancing the reds). We added lots of warmth to make the image a close approximation of the original print (C), rather than the zombie convention depicted in the original scan.

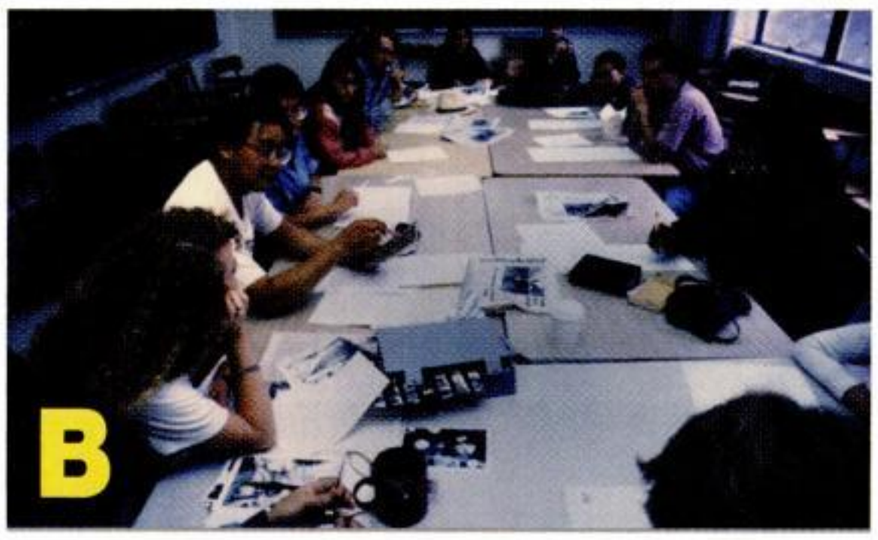
We also tweaked the shadows and the highlights to give our image more oomph. We increased the brightness of the highlights (or bright portions of the photo), but that caused the white T-shirt on the left to glow. *Picasa 2* doesn't have a dodge or burn tool that a full-fledged image-manipulation program would have to re-darken blown-out highlights or dodge shadows, but we're comfortable with small blown-out areas in our image.

Finally, we selected *Picasa 2's* third tab to sharpen the image (D). The original image was printed more than 10 years ago and scanned into a PC using a flat-bed scanner. The initial scan was pretty soft, so sharpening helps the people in the foreground of the photo stand out more.

Picasa 2 saves the changes you make to the image in its database with the other photo meta-data, so you can undo changes down the road if you want to retouch the photo in a more advanced editor. If you want to save a retouched version of the photo, you'll need to save it using *Picasa 2*; you can't just copy the file from your pics directory.

A poor scan job resulted in a blue-shifted image.

Manually tuning the color is the best option, assuming your monitor isn't terribly out of whack.



Auto Color doesn't add much life to the photo.

The final step in our photo rehabilitation is sharpening.

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CATCH WIRELESS MOOCHERS!

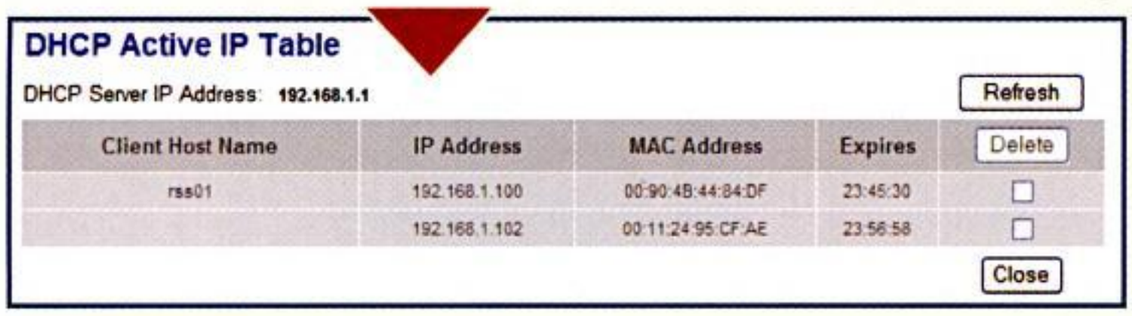
To monitor activity on your wireless network, you don't need to rely on fancy network monitors or complex shareware packet-sniffers. Your router comes with all the tools you need to find out who's been mooching your Internet connection and what they're up to. If you've seen your router's activity lights flickering when you know your PCs are turned off, here's how to find out what's happening.

STEP 1: LOG ON

Log into your router's web interface by browsing to the IP address. If you don't know your router's IP address, it will be the same as the Default Gateway, which you can find by right-clicking your connection, clicking Status, and then clicking the Support tab. Once you're at the page, enter your username and password.

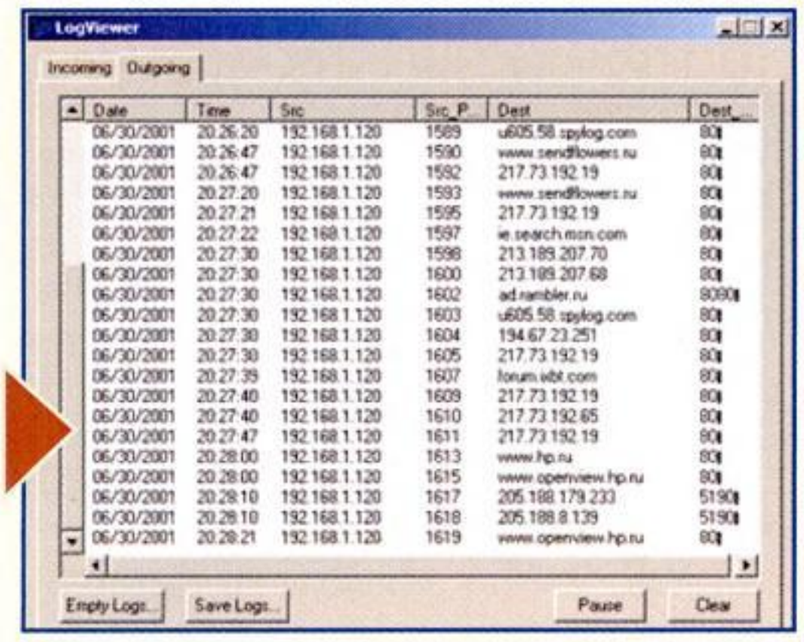
STEP 2: CHECK THE DHCP TABLE

If you're using DHCP for routing, which most people do, then your router's DHCP table keeps a list of all the machines that connect to it. On our Linksys WRT54G, we access this table by clicking the Status tab, choosing Local Network from the submenu, then clicking DHCP Clients Table. In our test scenario, the only PC that should be on our network is the one we named rss01. So that other, unnamed machine is an intruder.



STEP 3: SEE WHAT THEY'VE BEEN UP TO

Enable traffic logging on your router to find out what your intruder has been up to. This isn't really necessary, but it can be fun—especially if your nefarious neighbor has embarrassing surfing habits. After a day or two, check the list to see what sites they've been visiting. Then send an anonymous blackmail note requesting a briefcase full of small, unmarked bills.

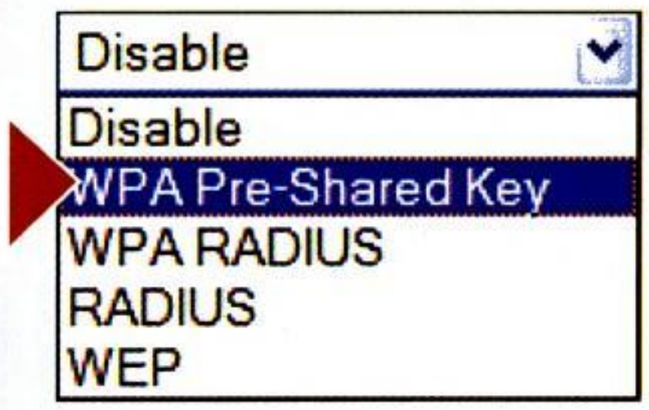


Secure Your Wireless Network with WPA

Locking down your network with WEP is like bungee jumping with a rubber band: Unless you really dig danger, we don't recommend it. And even if you already use WPA, you should make sure you're using AES encryption rather than TKIP key scrambling for maximum security. Here's how to use WPA's robust encryption to keep your neighbors off your network.

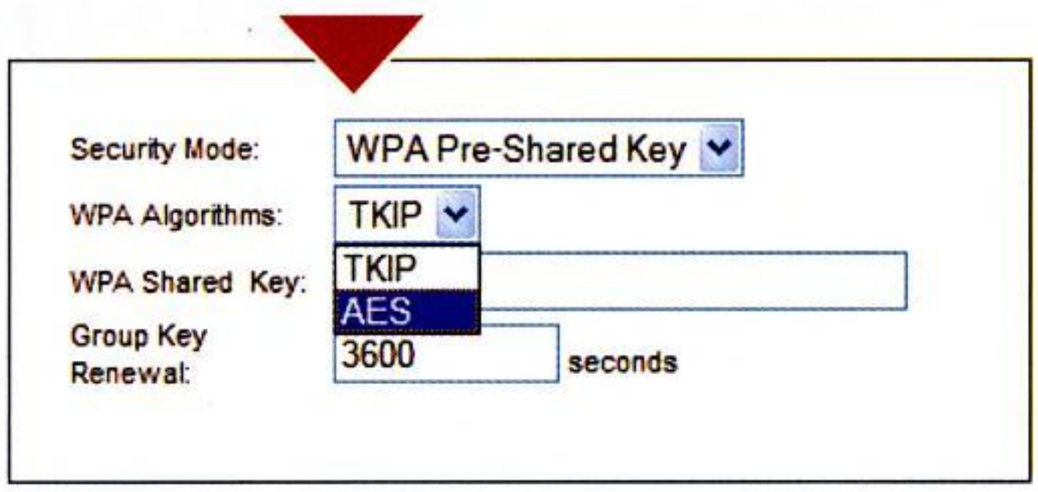
STEP 1: PICK WPA

Log into your router and go to your wireless security screen. Some routers put this right on the front setup page, while others bury it. Our Linksys router tucks it under the Wireless tab. Once there, choose WPA Pre-Shared Key from the drop-down menu.



STEP 2: SWITCH TO AES

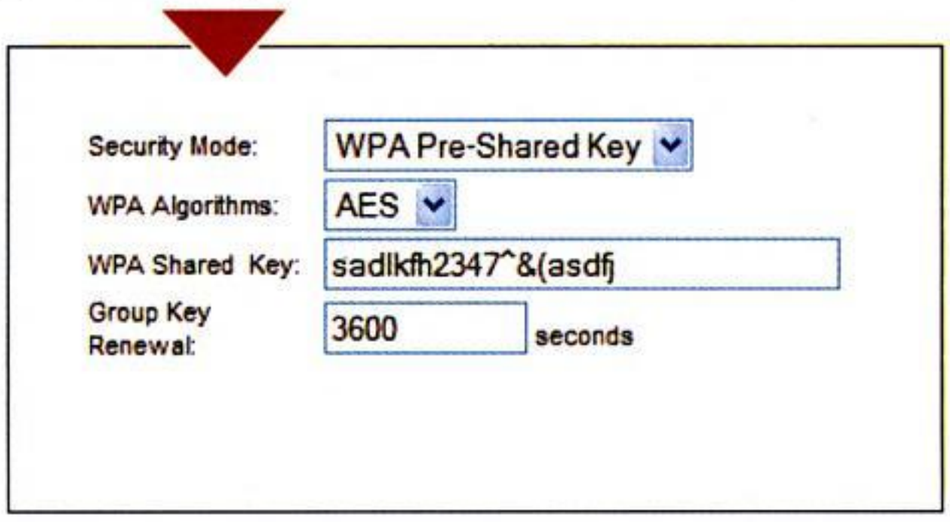
The latest version of the WPA security standard, WPA2, uses Advanced Encryption System (AES), rather than relying on the less-secure TKIP key scrambling, to protect your data. Encryption has a distinct advantage over key scrambling in that it makes it much harder for packet sniffers to suss your password. If you're using an older router, you may need to download the latest firmware update to take advantage of AES.



STEP 3: SET THE KEY

Make your key as random as possible to prevent "brute force" attacks that attempt to guess your WPA key by trying every possible permutation.

As with any password, your WPA shared key should be as long and random as possible, with lots of odd characters and numbers thrown in. Save your settings, reboot your router if necessary, and enjoy safer surfing!



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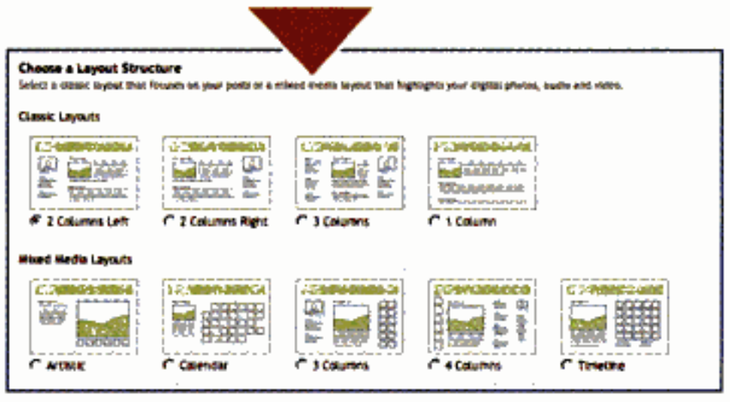
Build Your Own Blog

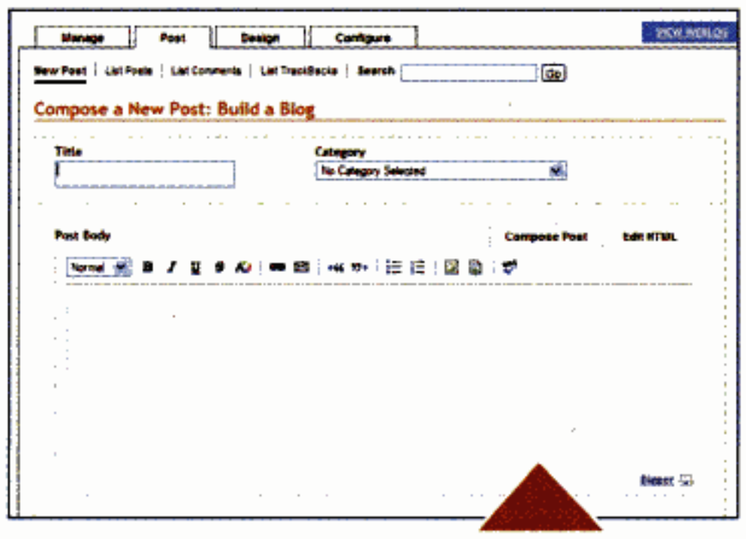
Whether you're talking about the popular bizarro news site BoingBoing.net or the millions of haven't-been-updated-since-2003 personal weblogs that litter the Internet, blogging is a hot topic. If you want to start your own blog, it's never been easier—we'll have you up and blogging in five minutes.

There are loads of competing blogging services, but to set up a quick-and-dirty weblog, we prefer *Typepad*—the URL is **www.typepad.com**. *Typepad* automates lots of the confusing things about blogging, such as site design, hosting, and configuring a domain name.

STEP 1: Sign up for an account at **www.typepad.com**. It's easy, and it only takes a couple of minutes. Once you've created the account and signed up for a billing plan—remember, *Typepad* offers a 30-day free trial, so if you cancel your sub before 30-days is up, you won't be charged—you'll be presented with the template selection screen. Here you can choose the basic format your blog will take. We chose a fairly standard two-column layout. If you change your mind later, it's easy to change the template, so pick one that looks good, and we can move on.



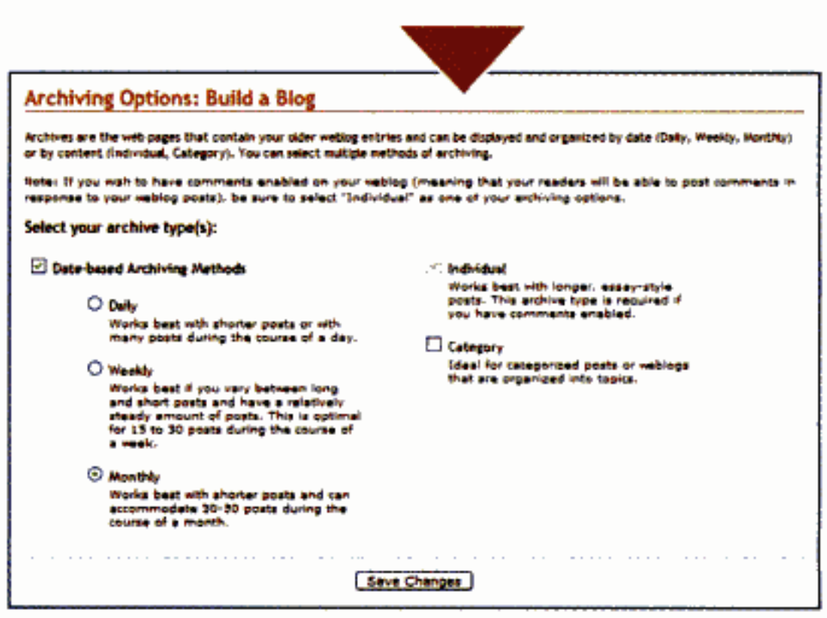
STEP 2: Your blog is configured! You'll see a screen that looks something like this one. Before you make your first post, take a second to explore. From this page you can see all sorts of important info about your blog. The first thing you should do is click "Edit Your Member Profile" and fill in a few blanks. The nickname field is especially important, as your nickname is used to sign your blog posts.



STEP 3: Now it's time to make your first post. Go back out to the main *Typepad* screen, and click Post next to your weblog's name. You should see a screen that looks like this one. From this point on, posting to your blog is similar to posting a thread on a message board: Simply fill in the required fields—title and body—and press Save. As soon as you do that, what you posted will be accessible to everyone on the Internet.

STEP 4: Once you've made a couple of test posts, you'll probably want to tweak the design of your blog a bit. Click the Design tab and go to the Template Builder, where you can tweak both the content and layout of your page. If you go to the Content option first, you can add or remove common page elements, like a quick-nav calendar and a list of the most recent comments.

STEP 5: The last thing you should configure are archives. *Typepad* will automatically move older posts off of the front page and into an archive file for you; you just need to tell it what type of archives you prefer for your posts. *Typepad* even provides good guidelines to help you select the archiving method that's right for you. That's really all you need to know to start blogging!

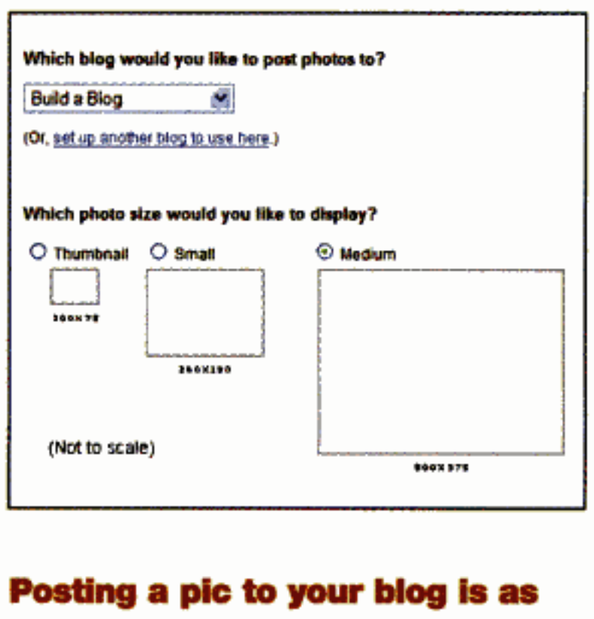


HOW-TO: POST PHOTOS TO THE WEB FROM ANYWHERE

Typepad Basic is a great blogging service for a mere $5/month, but it doesn't offer much in the way of space or bandwidth for other media, such as photos. You could sign up for the more expensive Typepad subscription that gives you access to photo galleries, but we prefer something a little more powerful. Enter Flickr.

Flickr (**www.flickr.com**) is a kick-ass online photo service that caters specifically to bloggers. In addition to sharing your photos, Flickr also lets you do some tricky stuff—like posting images to your blog from your cellphone or PDA. Best of all, you can directly link to photos on your blog, so you can host your blog from one place, and host your photos at Flickr. The cost is minimal—$25/year—and you don't have to worry about bandwidth, size quotas, or anything like that. You just need to know that you can upload up to 2GB of photos every month (there's also a free account limited to 10MB a month). It's an all-you-can-eat photo service.

Sign up for a free account at Flickr.com, then click Your Account.



Posting a pic to your blog is as easy as sending an e-mail to a special address.

Under the blogging section, click "Uploading photos to your blog by email." First, you'll have to add a blog. Flickr will walk you through the procedure, then you can select the photo size you want to display and whether you want to post the text of your e-mail along with the picture. Click Save, and Flickr will spit out an e-mail address. Any pics you send to that address will automatically end up on both Flickr and your blog.

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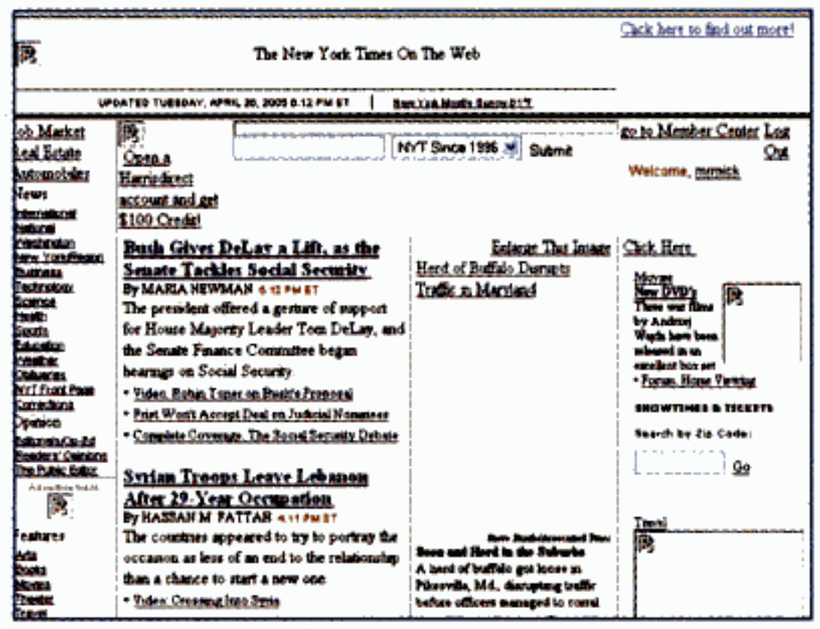
BROWSE THE NET ON YOUR MOBILE—FAST!

The biggest problem with using a mobile device to browse the web is that most web content isn't designed for the tiny screens that cellphones and PDAs sport. Couple that with a slow-ass wireless Internet connection, and it's no wonder so many people don't bother. There are a few *Maximum PC*-approved tips and tricks that can make the experience more bearable—note that we didn't say good.

If you enjoy reading the news on your PDA, Blackberry, or smartphone, download *AvantGo* for your handheld device. The service will deliver content from thousands of popular web sites—plus maps, stock quotes, movie listings—all specially formatted for the small screen.

If *AvantGo* doesn't include the pages you frequently visit with your mobile device, or if you'd rather not install an application, try using Skweezer (**www.skweezer.com**). Go to the site, put in the URL you want to visit, and Skweezer will reformat the site for the small screen, in real time. Skweezer also supports RSS newsfeeds. The ad-supported version of Skweezer is free, or you can pay $15 per year to banish the ads.

If you're browsing using a notebook, we recommend configuring your web browser to skip downloading images. When you connect over a cellular link, text-only browsing can make your sluggish connection feel like broadband. To disable images in *Firefox*, click Tools, Options, Web Features, and remove the checkmark next to Load Images. In *Internet Explorer*, go to Tools, Options, Advanced, Multimedia, and uncheck Show Pictures.



Using *Firefox* on a laptop? One of the simplest ways to speed up page loads is to configure the browser so it doesn't download images.

Surf the web via Skweezer, and the service will reformat pages into a single column in real time.

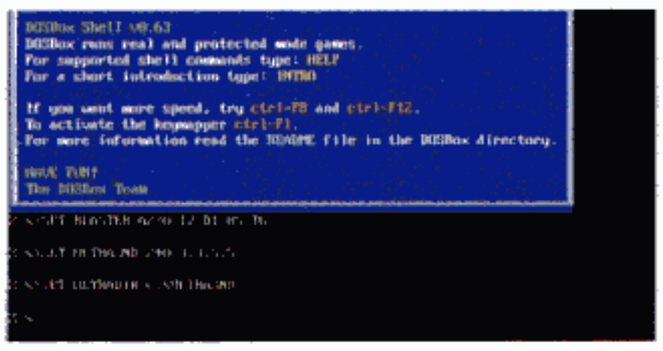
Play DOS Games in Windows Using DOSBox

Dig up those old floppies and dust off your ancient CD-ROMs, because when you can't get your old games to work using Windows Compatibility Mode, *DOSBox* will fool your games into thinking they're running on a DOS machine.

Download the latest version of *DOSBox* from **http://dosbox.sourceforge.net** and install it. Create a new folder—one on the C: drive works best—where you'll install your games; we named ours C:\oldgames. *DOSBox* will mount this directory as a virtual C: drive. Copy any games you want to play to the C:\oldgames folder. You should put each one in a subdirectory, but avoid using names longer than eight characters.

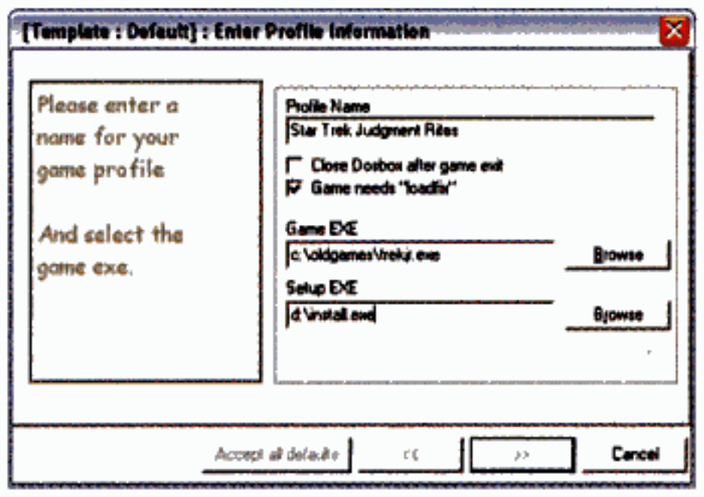
Launch *DOSBox*, then mount C:\oldgames as your C: drive by typing `mount C C:\oldgames`. You should see a Z:\ prompt. Type C: to go to your new, virtual C: drive, and you'll see the contents of your C:\oldgames directory!

If your old game came on CD-ROM, the strategy is a little different. After you launch *DOSBox*, type `mount D X:\ -t cdrom` at the command line, where X is your CD-ROM drive letter. If you need help with the syntax, just type `intro cdrom` at the command line.



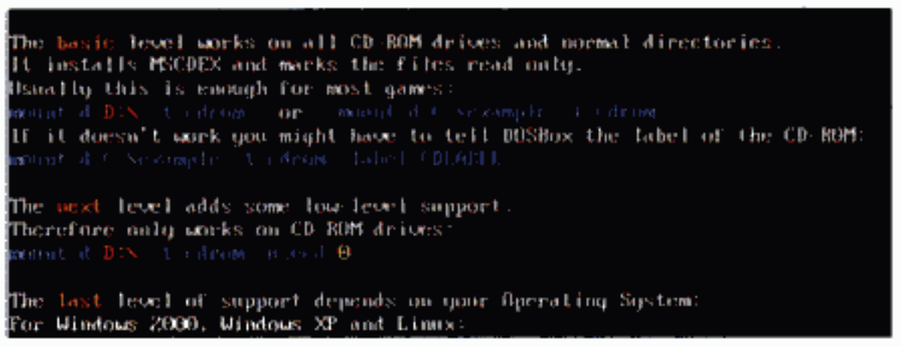
The return of ye olde command line: *DOSbox mimics* an old-school DOS PC.

If the command line is too stressful for you, there's an extra-fancy front-end for *DOSBox* called *D-Fend* that includes a wizard for setting up *DOSBox* and configuring hard-to-run games. You can download *D-Fend* for free at **http://members.home.nl/mabus/**.

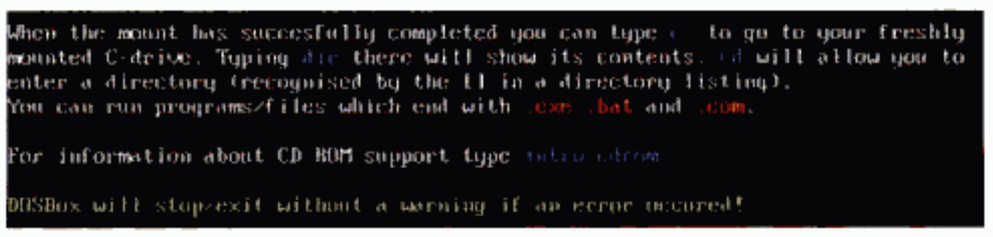


***D-Fend* is the most sophisticated front-end available for *DOSBox*.**

It's extremely likely that some games are going to give you trouble and require further tweaking. Don't panic—just go to **http://vogons.zetafleet.com/** and check the *DOSBox* forum, where you'll find tips on running just about every classic PC game you can remember.



***DOSBox* can install and run your games from CD-ROM.**



***DOSBox* includes quick-start instructions from the command line.**

Use Google's Advanced Search Tools

Most people agree that Google is the best search engine, but you might be surprised to discover how powerful this tool really is. Here are just a few of our favorite advanced tools:

➤ Frequently it's faster to use Google than some site's crappy built-in search. To limit your query to a specific site, type `site:www.url.com` in the search box along with your normal query.

➤ Curious as to who's linking to your website? Enter your own URL in the search window, preceded by the word "link:" For example, to see the sites that link to *Maximum PC's* homepage, type `link:maximumpc.com`. It's that easy.

Definitions of **wiki** on the Web:

- A community developed documentation project.
  www.etomite.org/wiki/Appendix/Glossary
- Web pages which are editable by visitors to the website as opposed to conventional websites which can only be changed by the webmaster. Usually used for "community" or technical sites to allow for joint authoring and ownership.
  www.lasa.org.uk/knowledgebase/pages/tsglossary.shtml

Precede any search term with the word "define:" and Google will display all the definitions it can find on the web for that word.

➤ Need to solve mathematical equations, convert units of measure, or perform other basic arithmetic? Enter the formulas into Google and the Google Calculator will deliver the solutions right along with your search results. This query will convert miles into kilometers: `500 mi in km`.

➤ Need the definition of a word or new slang? Precede your search term with the word "define:" and Google will display all the definitions it can find on the web. For example, did you know that "WIKI" is an acronym for "What I know is"?

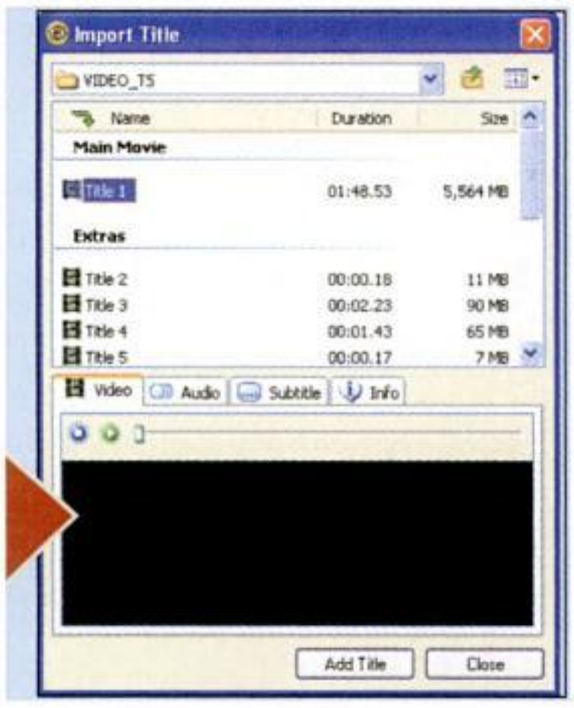
➤ Looking for a place to live? This awesome site (**http://paulrademacher.com/housing/**) superimposes real estate info from Craigslist.org on the Google Maps page.

RIP PSP-READY VIDEOS FROM YOUR DVDS

Sony's PSP is one of the hottest geek gadgets you can buy today. Not only is it good for games on the go, but its luscious, sharp, wide screen makes for *incredible* movie viewing. However, buying each movie twice—once on DVD and once on Sony's PSP-proprietary UMD format—sucks. Fortunately, you can take advantage of the PSP's integrated Memory Stick Pro Duo slot and purchase a high-capacity Duo card—a 1GB card costs about $150—so you can convert your DVDs to play from the memory stick.

Video files for the PSP must be converted into a special MPEG-4-based format (called H.264) at one of two specific resolutions. The best freeware app we tested is *PSP Video 9* (**www.pspvideo9.com**), which can convert nearly any type of video to work on the PSP.

An even better solution is a combo of *AnyDVD*—an on-the-fly DVD decryption app (**$40, www.slysoft.com**)—and *Nero Recode*, a part of the *Nero Ultra* bundle (**$80, www.nero.com**). *Recode* is lightning-fast and produces excellent-quality videos at a reasonable file size. (And if you own *Nero*, you've already got it!)



STEP 1: Once you've installed *AnyDVD* and *Recode*, fire up *Nero Recode* and select "Convert DVD and video to Nero Digital" and press Next. Then click "Import titles" and browse to your DVD drive. You'll be presented with a list of titles you can preview to pick the right movie to encode. Click the title (or titles) you want to encode, and press Import. Make sure you give each video you import the appropriate name—that name will show up on your PSP.

STEP 2: Next, you'll click the Video button. *Recode's* good at setting crop and interlace settings automatically, but you'll want to select your own thumbnail image for the PSP. Click the Thumbnail tab, then scroll through the movie until you find the image you want for the thumbnail. Remember—it will be tiny on the PSP, so it needs to be something that's easily recognizable. Press OK, then click Next to move on to the next step.

STEP 3: Now you need to select the proper profile—you want Memory Stick Video (PSP-compatible). We also recommend using the high-quality (2-pass) encoding method in the *Nero Recode* settings menu. Finally, make sure "Create Sony PSP folder structure" is checked, and press Burn to get ripping!

STEP 4: Once the rip is complete, you'll need to copy it to your PSP. Connect the PSP to your computer and enable USB mode, then simply drag-and-drop the entire folder that *Nero Recode* builds—it's My Documents\Nero Recode\MP_Root—to the root of your PSP's memory stick. Disconnect your PSP, and you're ready to watch movies!

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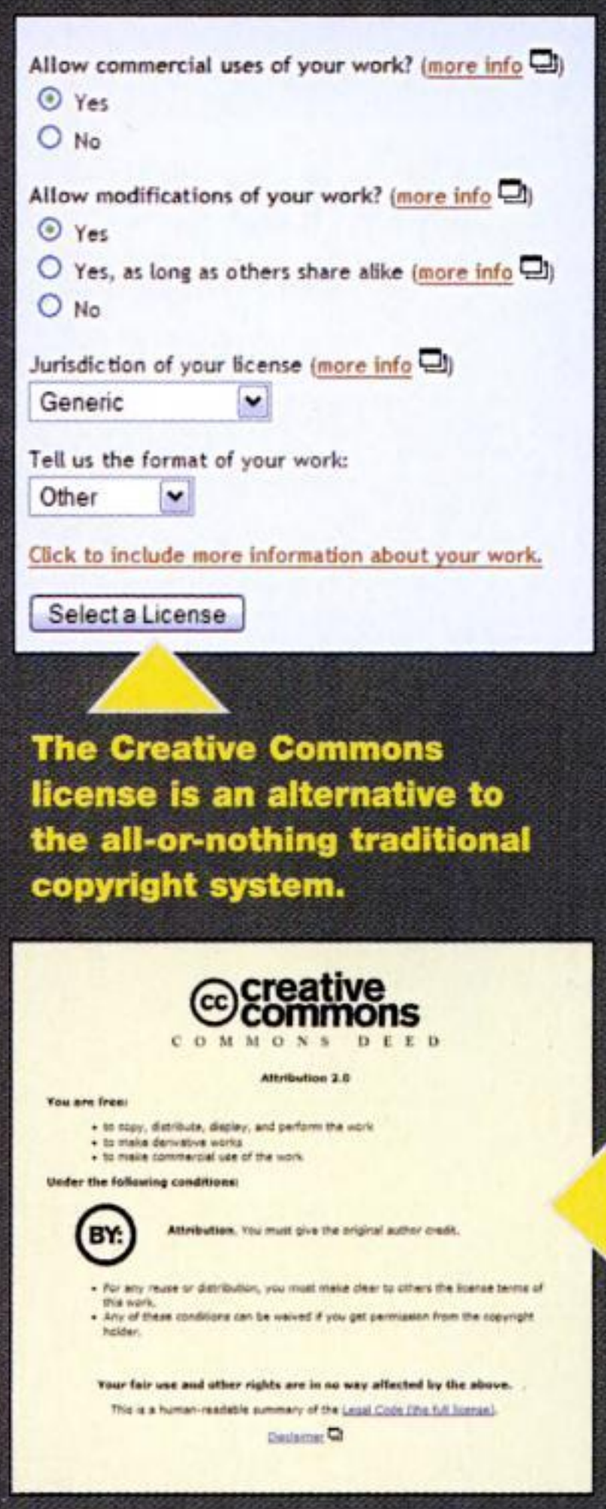

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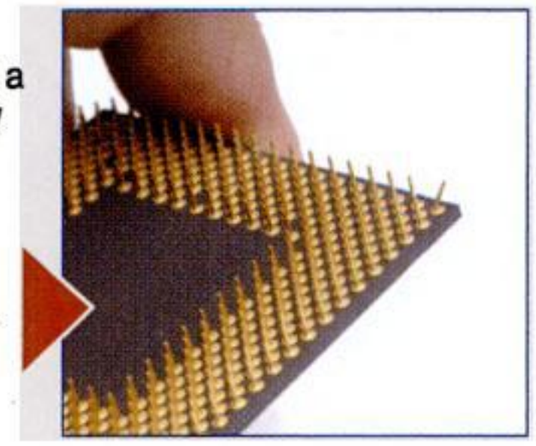
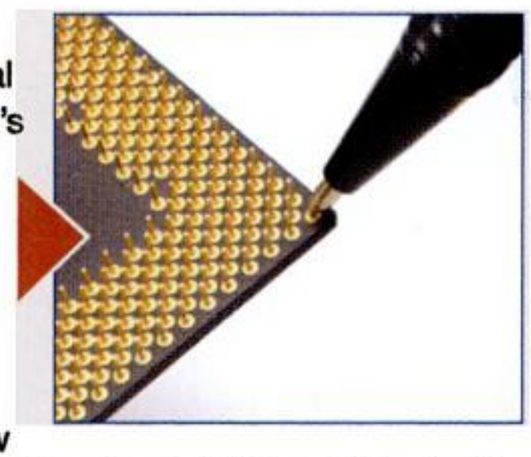
How to Fix a Bent CPU Pin



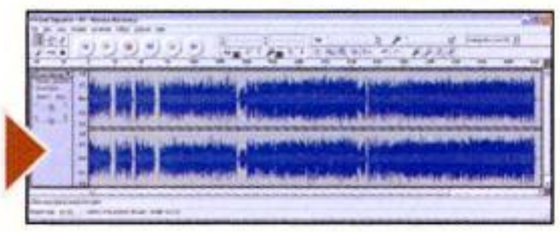
STEP 1: The PC builder's nightmare: a bent CPU pin. *Argh!* Accidents happen. But a bent CPU pin is a particularly expensive accident, and if you've ever tried to fix one with a pair of pliers or tweezers, you know you're just as likely to bend the pin even more, or bend neighboring pins trying to fix the first one. Lucky for you, there's a simple, virtually disaster-proof solution: a mechanical pencil. Yes, the tip of a 0.5mm mechanical pencil just happens to be a perfect fit for CPU pins!



STEP 2: All you'll need is a mechanical pencil with a tip that's at least four or five millimeters long. Empty the pencil of its lead, and slip the tip over your CPU pin until you reach the bend. Now gently—*gently*—ease the pin straight up. If in doubt, undershoot the repair, because it's safer to continue bending it in one direction than bending it back in the other.

HOW TO CREATE AN AUDIO LOOP

The open-source, freeware audio editor *Audacity* can help you create a custom sound loop to spice up your DVD-Video menu, or provide a rhythm track for your guitar shred (if your drummer's in rehab).

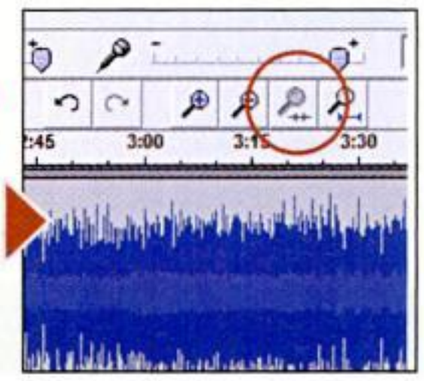


STEP 1: Install Audacity

Grab *Audacity* from **http://audacity.sourceforge.net** and install it. Launch the application and select File > Open to load the audio track from which you want to extract a loop—we're after a portion of Led Zep's "Bonzos Montreux" because the long drum solos will be easy to grab and loop.

STEP 2: Find the Perfect Loop

Now you'll need to isolate the portion of the track you'd like to loop. We don't want the intro—the drum-fill that begins the song would be annoying in a looped file. Instead, we want to capture the regular, driving beat afterwards. To get a general idea of where your loop begins and ends, press the Play button and watch the cursor move over the track as it plays. Note how every drum hit creates a spike in the graph; your loop is going to begin with one spike and end a hair before another.

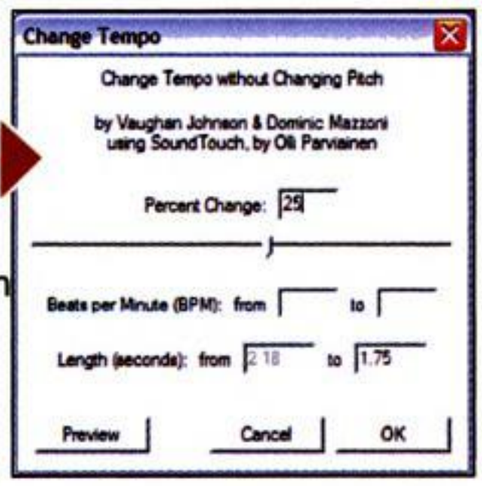


STEP 3: Zoom In for a Closer Look

Using your mouse, select the area between your loop's beginning and end—you don't have to be exact about it just yet. Then click the "Fit Selection to Window" button to zoom in on that portion.

STEP 4: Isolate Your Loop

Click the Play button again and repeat step two, visually locating the beginning and end points of your audio. You may have to repeat this step numerous times until you nail it exactly. When you think you've got it, highlight this portion of the audio track, hold down the Shift key and press Play again to audition your loop. If there's any stuttering or missed beats, keep adjusting your selection area until it plays seamlessly. Once you've aced it, press the yellow, square Stop button and select Edit > Copy.



STEP 5: Export Your Loop

Select File > Export Selection as WAV. Your finished loop will be saved to the directory of your choice. Alternatively, you can copy the selection via Edit > Copy, and paste it into a new Audacity file. From here you can apply effects to your loop from the Effects menu, changing the tempo, perhaps, or applying Cross Fade to smooth out the loop point of a selection that doesn't transition from the end back to the beginning smoothly. MPC

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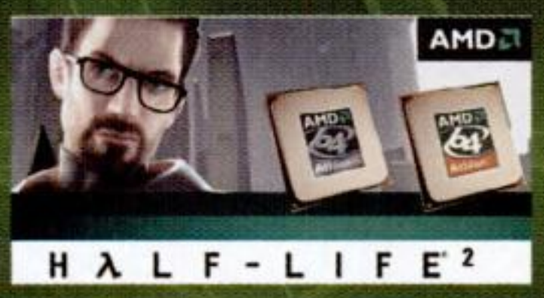

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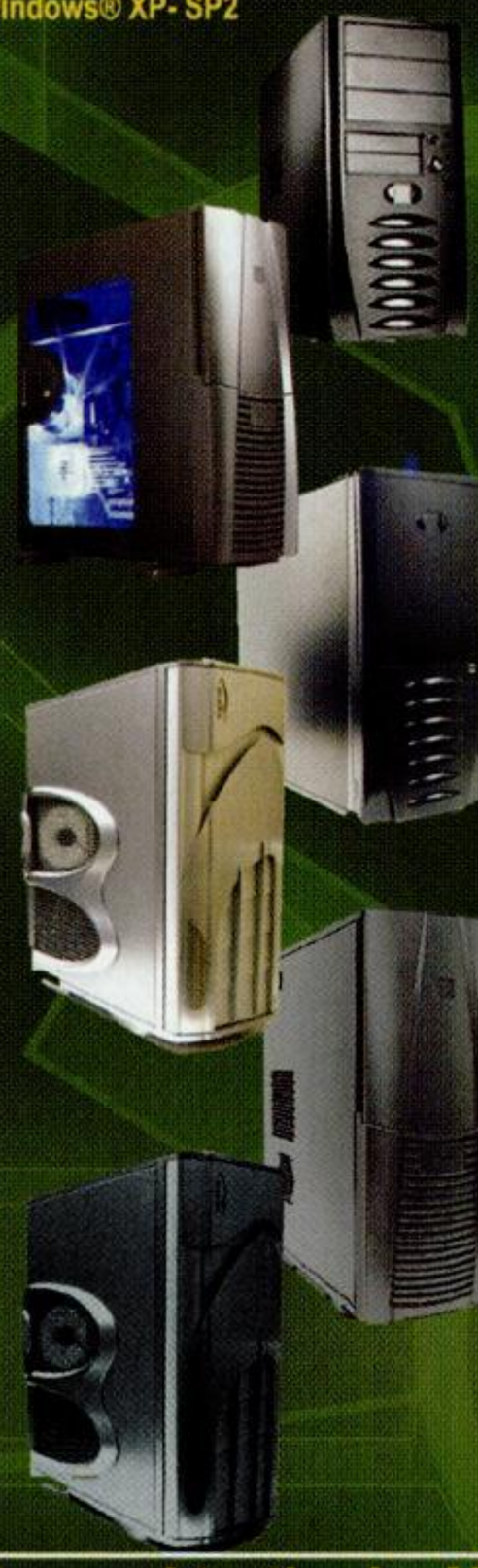

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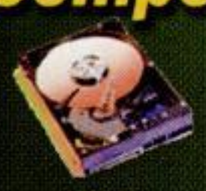

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EVGA GeForce 7800 - Limited time offer - only while supplies last!

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EVGA GeForce 7800 GT 256MB
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Monarch Nemesis™ Custom Gaming Desktop

Keyboard, monitor, and speakers available seperately - see website for all accessories.

Dominate the competition with your dream rig!

Ask for Part #: 80502
AVAILABLE COMPONENTS:
Choice of Case and Power Supply
Choice of name-brand Motherboard
Choice of AMD Athlon™ 64/FX/X2
- includes heatsink and fan
Choice of name-brand memory
Up to 3 name-brand Hard Drives,with optional RAID setup (1 or 0)
Up to 2 name-brand Optical Drives from CD-ROM upto Dual-Layer DVD Writes
Choice of Floppy Drive
EVGA GeForce 6600 LE 256MB DDR/PCI-E/TV-Out/DVI
Choice of name-brand sound card
Network options from modem to wireless
Choice of OS including Microsoft Windows XP Home, Professional, and Media Center
Industry Standard Upgradable
Full line of peripherals and accessories
1 or 3 year warranties available
24/7 on-site service available

Starting @ ONLY **$439!**

Monarch Nemesis™ Value Gaming Desktop Special (PCI-E)

Ask for Part #: 90594

Keyboard, monitor, and speakers available seperately - see website for all accessories.

SELECTED COMPONENTS:
Thermaltake VB1430BWS Soprano Mid Tower Case w/Window w/430W Power Supply (Black)
DFI Lan Party UT nForce4 SLI-DR Audio, GB-LAN, IEEE, USB, SATA w/RAID, DDR-400, ATX
AMD Athlon™ 64 3500+ 512K 90nm (939)
AMD Certified Heat Sink Fan
1 GB (2 pcs 512) DDR (400) PC-3200 OCZ
Western Digital 80GB SATA 8MB Cache 7200 RPM (WD800JD)
NEC ND-3540A 16X Dual Layer DVD±RW
Mitsumi 1.44MB 3.5" Floppy Drive (Black)
EVGA GeForce 6600 GT 128MB DDR3 PCI-E/TV-Out/DVI
Microsoft Windows XP Home Edition w/SP2
Industry Standard Upgradable
USB Ports on front of case
1 or 3 year warranties available
24/7 on-site service available

OUR BEST SELLER! Starting @ ONLY **$1029!**

Monarch Furia™ Custom Workstation w/SLI

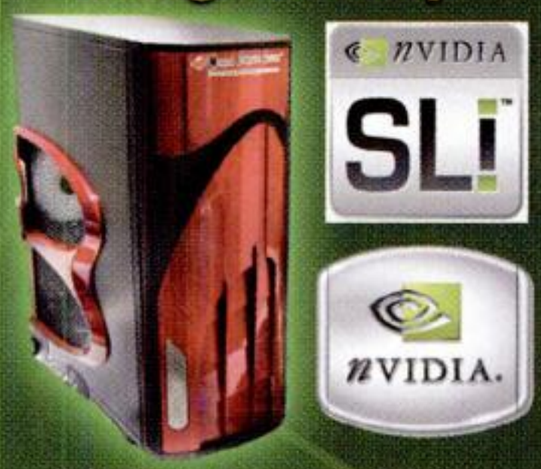
Keyboard, monitor, and speakers available seperately - see website for all accessories.

Work Smarter and Faster with this Powerful workstation!

Ask for Part #: 80391
AVAILABLE COMPONENTS:
Choice of Case and Power Supply
Choice of name-brand Motherboard
Choice of AMD Athlon™ 64/FX/X2
- includes heatsink and fan
Choice of name-brand memory
Up to 3 name-brand Hard Drives,with optional RAID setup (1 or 0)
Up to 2 name-brand Optical Drives from CD-ROM upto Dual-Layer DVD Writes
Choice of Floppy Drive
EVGA GeForce 6600 256MB DDR PCI-E/HDTV-Out/DVI
Choice of name-brand sound card
Network options from modem to wireless
Choice of OS including Microsoft Windows XP Home, Professional, and Media Center
Industry Standard Upgradable
Full line of peripherals and accessories
1 or 3 year warranties available
24/7 on-site service available

Starting @ ONLY **$577!**

Monarch Nemesis™ FX-57 7800 SLI Gaming Desktop



Keyboard, monitor, and speakers available seperately

Don't settle for less than the ABSOLUTE BEST!

Ask for part #: 90595
SELECTED COMPONENTS:
Thermaltake Shark Full Tower w/FirePearl Custom Paint
Enermax Noisetaker EG701AX-VE-SFMA ATX 2.0 w/SLI Support 600W PS
Asus A8N-SLI Premium NForce4 SLI
AMD Athlon™ 64 FX-57 CPU
2 GB (4 pcs 512MB) (TWINX1024-3200XLPRO) Corsair
1 x WD 74 GB SATA HDD
2 x WD 250 GB SATAII HDD w/RAID 0 Setup
Plextor PX-716SA DVD±RW
Mitsumi Floppy 7-in-1 Flash Reader
2 x EVGA Geforce 7800 GTX 256MB GDDR3 PCI-E, TV-Out, Dual-DVI
Creative Labs X-Fi Platinum
D-Link DWL-AG530 Tri-Mode Dualband Adapter
Microsoft Windows XP Pro (SP2)

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FREE GIFT!

ONLY MONARCH CAN DELIVER ALL THIS WITH YOUR UPGRADE!
Half-Life 2, Livestrong Wristband, 128 MB SD Flash Card w/USB Reader
Along with the best parts, prices, service and support in the industry!

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Konfabulate Your Desktop

Maximize your screen real estate with dozens of handy data-gathering widgets

TIME 00:20 HOURS:MINUTES

You just bought a kick-ass, 23-inch, flat-panel display—which you paired with your old monitor—and now you have more screen real estate than you know what to do with. Enter *Konfabulator*. *Konfabulator* lets you add applications and instrumentation to your desktop that can display damn near any info you want. You can add everything from the weather in Bogotá, to your CPU usage, to the traffic conditions in your own hometown, to cover art for the track you're playing in *iTunes*. There are also dozens of utility widgets that serve as shortcuts to your frequently used FTP sites and quick Internet searches.

Konfabulator works its magic through a combination of Javascript code (which scrapes the net for the data you need) and XML (which describes the widget's appearance). You'll find more than 400 applets on *Konfabulator's* web site; if you're familiar with Javascript and XML, you'll discover that it's very easy to create your own.

The best thing about *Konfabulator* is its low impact. Even with 10 or more applets running, the *Konfabulator* absorbs just a tiny fraction of your CPU and memory. Interested? Let's get started then!

BY WILL **SMITH**

DOWNLOAD AND INSTALL KONFABULATOR

This step's really easy. Go to *www.konfabulator.com* and download the trial version of the software. Once you've installed it, the Getting Started widget will activate several common widgets, including a clock, a stock ticker, and a basic weather applet. Take a few minutes and play around with each widget. You can drag and drop them anywhere on your desktop, but the real fun starts when you get into the right-click Preferences. There you can customize your widgets to suit your needs—after all, if you live in Omaha, you don't need the weather in Kalamazoo. Once you have a good grip on what your widgets can do, move on to step two.

***Konfabulator* is like an instrument panel for your desktop. Add any info you want directly to your desktop without taking a huge performance hit!**

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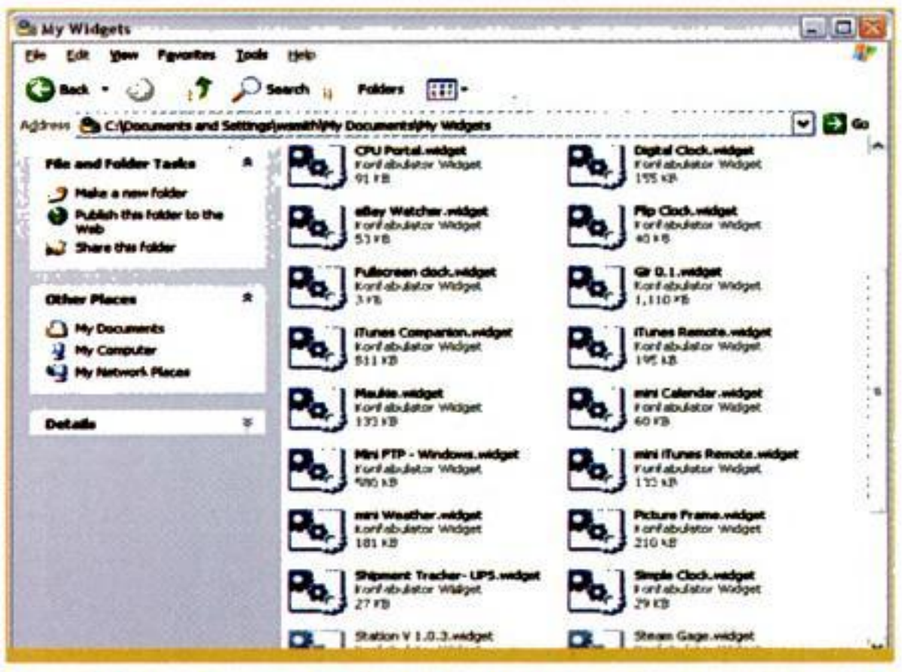
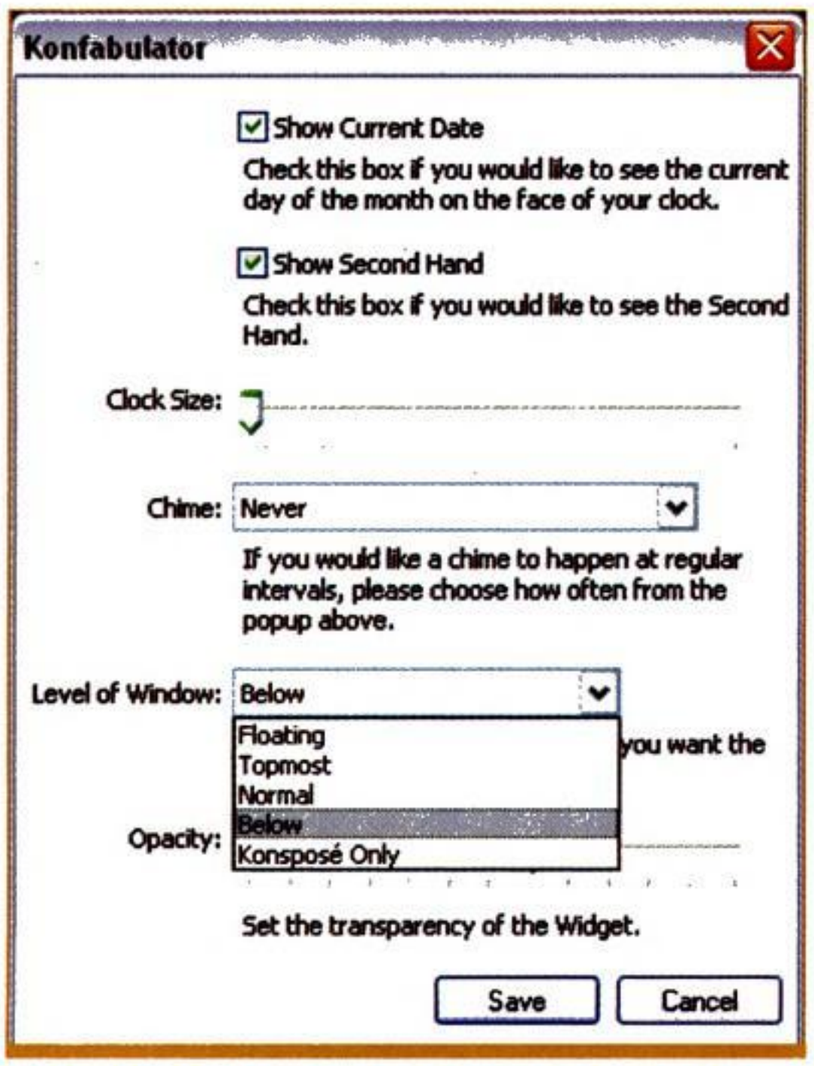
INSTALL NEW WIDGETS!

This is where *Konfabulator* gets really cool. Head over to **Widgetgallery.com** and browse its vast selection. If you find yourself intimidated by the sheer number of widgets available, you'll find a list of our 10 favorites on the very next page.

Each widget is a self-contained file, with the clever extension of ".widget." To load a new widget, simply double-click the .widget file. *Konfabulator* won't actually copy your .widget files into the My Documents/My Widgets directory, so it's very important you move them there yourself after you've downloaded them, and before you run them the first time. If you don't, they'll end up scattered all over your hard drive and they'll be impossible to manage.



We highly recommend that you store all your widget files in the My Widgets directory in My Documents. If you don't, *Konfabulator* might get confused and have trouble restoring your desktop.



You control the precise placement of your widget, including its level of depth on your desktop. By setting the Level of Window option, you can float a widget above all other windows, or embed it in your desktop.

TWEAK YOUR LEVELS

Konfabulator widgets behave differently than most other windows. There are five levels that most widgets can use, but there are some subtle differences between the options. When you open most widget preferences, there's a "Level of Window" option. Here's what happens with each level setting.

- **Normal:** Normal-level windows act just like other windows. You can move them around and click on them to make them the currently active window.

- **Topmost:** Not surprisingly, topmost windows are always on top of other windows. Here again, you can click on them and move them like any other window.

- **Below:** When you use the Below setting, your widget will effectively be embedded in your desktop. You can click and move it, but it will appear underneath any other windows on your desktop.

- **Floating:** The Floating setting puts the widget above any other windows on your desktop, but you can't interact with it at all. The floating setting is great for objects—such as clocks—that provide info you need, but that you don't need to interact with. If you combine the floating setting with 80-percent transparency, you'll get an unobtrusive desktop item that won't interfere with your day-to-day computing.

- **Konsposé Only:** The Konsposé-only setting places the widget in question on your desktop only when you're in *Konfabulator's* special full-screen F8 mode. We don't use this setting much.

WORKING WITH FLOATING WIDGETS

Once you've set your widgets to floating mode, you can't click or drag them; in fact, you can't really interact with them at all. If you want to move a widget or change its preferences, you'll need to enter the Konsposé mode.

Konsposé mode lets you see and move all your widgets easily. To enter it, press the F8 key on your keyboard, drag your widgets as you please, and then click an empty area of the desktop to return to your normal desktop mode. Pretty easy, huh?

Konsposé mode lets you move or modify embedded widgets.

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10 Kon-fabulous Widgets *Everyone* Needs

Not every widget is good for everyone, but *all* of these widgets kick ass

1 CLIPDROP

The Clipboard history sidebar in Microsoft Office might seem like a goofy feature, but we've always liked it. The ClipDrop widget works exactly the same way: It saves the last few items that appear on your clipboard, and then lets you paste them into *any* application.

2 MINIFTP

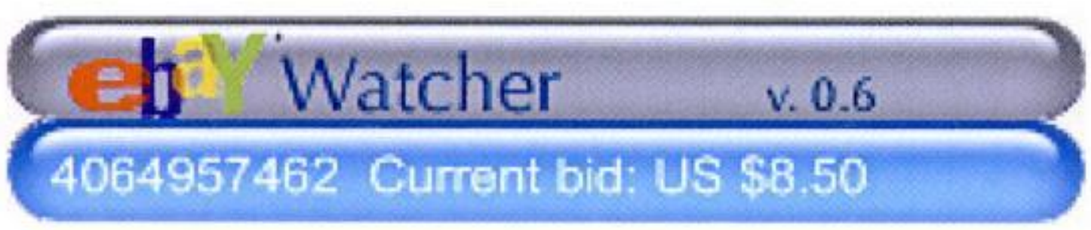
We upload files to a private FTP site all the time, and the mini FTP widget makes it easier than ever. Once you set up the widget to point to your FTP site, all you have to do is drag and drop the files you want to upload to it, and away they go.

3 MINI iTUNES REMOTE

iTunes is fabulous for managing large music collections, but the included mini-player mode is too big and clunky. The mini iTunes Remote offers all the important functionality—play, pause, next track, and previous track—in a much tidier package.

4 iTUNES COMPANION

The iTunes Companion also offers remote control of *iTunes*, but we turn those features off. Instead, we set the widget to float and it quietly grabs album cover art from Amazon.



5 eBAY WATCHER

Let's face it, there's a whole lot of neat stuff for sale on eBay, but it's a drag to keep checking eBay's ass-slow web site. With the eBay Watcher widget, you can plug in the auction IDs of the items you're interested in, and it'll update the current high bid every five minutes.

6 MINI CALENDAR

This is a pretty easy concept: mini Calendar is like a calendar, but smaller. You can change months and click on different days, or just leave it floating in the background.

7 MINI WEATHER

The only real difference between the full-size Weather widget and the svelte mini Weather widget is the absence of the four-day forecast. After all, how often is a forecast accurate that far in advance, except for maybe San Diego, where the weather never changes. If you just want a small widget to display the current temperature and precipitation status, this one's for you.

8 BLOGLINER

Blogliner is a fancy online news-aggregation web site. You tell Blogliner which sites you want to keep track of—it includes such favorites as Slashdot, BoingBoing, and Shacknews, but you can add any site with an RSS feed—and Blogliner serves as a web-based RSS reader. The Blogliner widget tells you when you have new news and how many stories have been posted since your last visit.

9 CHROME CLOCK

Have digital clocks stolen your ability to instantly read analog time? Do you prefer round to square? Are you, or have you ever been, a member of the Society for Creative Anachronism? If you answered yes to any of the preceding questions, you should check out the many nifty analog-clock widgets available for *Konfabulator*. They're all great, but we like Chrome Clock best.

10 UPS SHIPMENT TRACKER

You just ordered a shiny new CPU, and you're dying for it to arrive. What better way to keep an eye on its status than with the UPS Shipment Tracker? Input up to five tracking numbers and this handy widget will keep you updated on your package's status, around the clock. No more mashing "refresh" on the UPS page for you! MPC

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Pimp Out FIREFOX!

Extension Junction—what's your function? Find out what *Maximum PC's* top 20 Firefox extensions can do for you!

TIME 00:20 HOURS:MINUTES

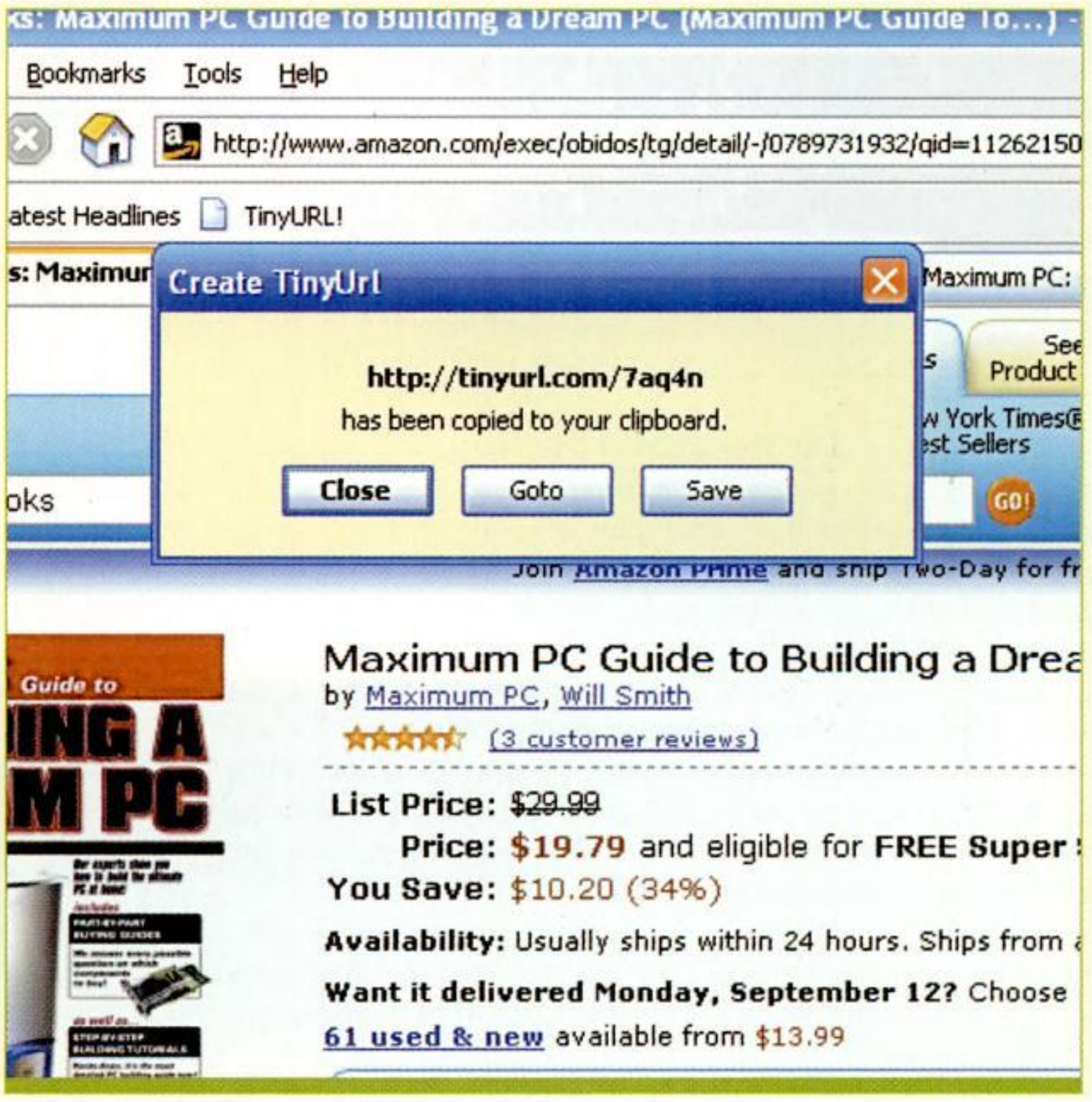
Folks, don't get us wrong: We're not *Internet Explorer* haters. We just love *Firefox's* tabbed interface and extensibility. Although the stock *Firefox* package installs a svelte, streamlined browser that's quick on its feet, we can't resist the temptation to gorge ourselves with the thousands of available extensions that customize our browser to do all the things we want it to do. From extensions that add armor-plated browser security, to tireless agents that constantly scour the Internet for sudden dips in air fares, the possibilities really are endless. The moral of the story: Master your extensions, and you'll master your web experience. (To get extensions go to Tools>Extensions>Get More Extensions within Firefox.)

BY CLAUDE **MCIVER**

SITE NAVIGATION

The miracles of miniaturization have had a profound **impact on our** lives, in computers, cellphones, and **swimsuits, to** name just a few examples. And now, **even those annoyingly** long URLs that crowd the web **can be truncated** to functional use. With the *Tiny URL* **extension, a** simple right-click allows you to transform the address of any page or link into a petite URL **that you can** save or share with others. And the best **part is, these** wee web addresses never expire, so **you can send** grandma a link to the super-cool gizmo **you want from** Amazon in a URL that won't leave her **grappling with** a four-line cut-and-paste nightmare.

While you're at it, save yourself some time by **ditching the** scroll wheel. As useful as it can be, the **wheel is no** match for *Scrollbar Anywhere*, which lets **you scroll in** any direction just by holding down the **right mouse** button. Your finger's already lounging **there—give it** something to do. Need more excitement? *Simple Rocker Navigation* allows you to go **backward and** forward through web pages without the burden of lifting your lazy-ass hand off the **mouse. Holding** the left mouse button and clicking **the right button** goes forward in your page history, **while doing** the reverse will go backwards in the history. Simple and effective, just the way we like it.



The RL in URL doesn't have to mean "really long," thanks to the magic of *Tiny URL*.

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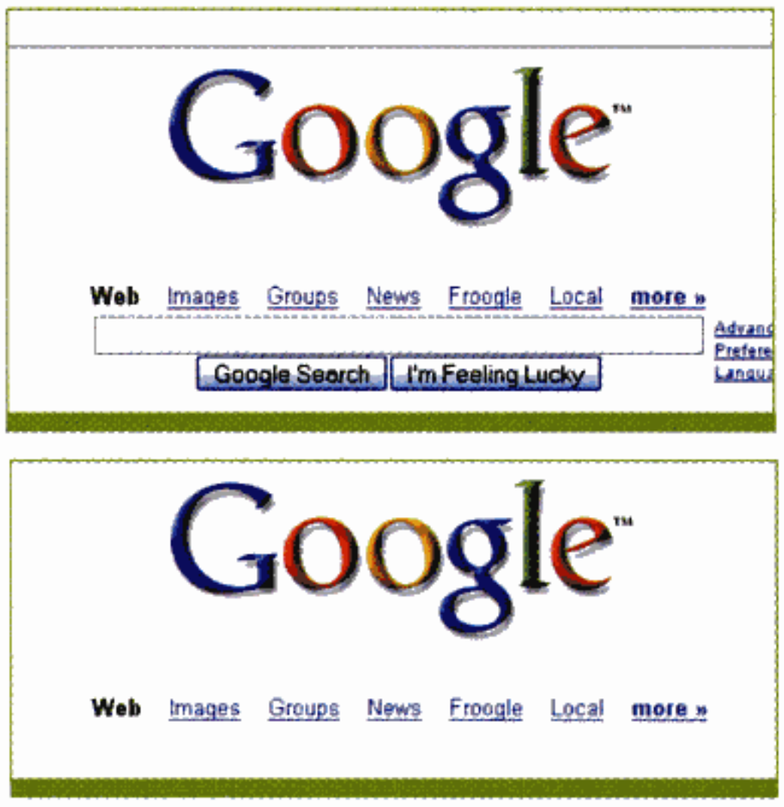
MORE FUN WITH SITE NAVIGATION

The exceptionally daring might wish to demonstrate their *nav fu* by ditching the mouse altogether. Everyone knows that the Tab key jumps from one page element to the next—including links—and that pressing the Enter key submits field information and activates links. But the *Mouseless Browsing* extension completely liberates you from the little rodent by associating page elements with numbers. Just enter the number, press the Enter key, and *Firefox* responds as if you clicked the link. It's a great way to fly though web pages and give your clicking finger a break.

Windows Explorer has a handy "Up" button that whisks you up one level in the directory structure, so why shouldn't your web browser? You can stash *Go Up* on your toolbar, and with a quick click you can advance upwards in a website's directory—for example, using *Go Up* at **www.maximumpc.com/reviews** will take you directly to our home page without forcing you to backtrack with the Back button.

As if that wasn't godlike enough, *Aardvark* allows you to whimsically delete any element on a web page by simply placing the cursor over it and pressing R. Remove ads, pictures, text—anything you (don't) want. The power is *intoxicating*.



Now you see it, now you don't. View only what you want with *Aardvark*.

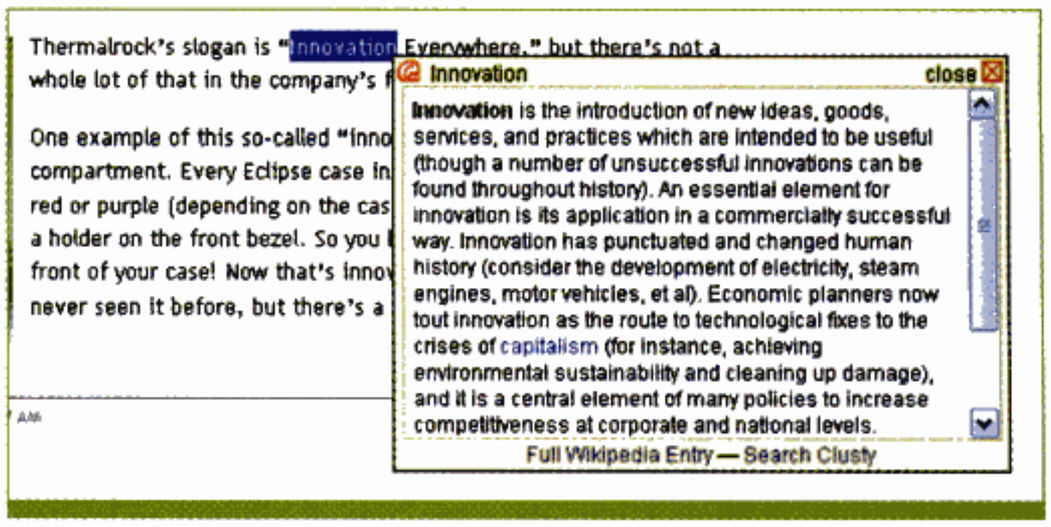
SECURITY

You wouldn't leave the keys to your car on the hood, so don't leave the keys to your PC in your browser. *NoScript* allows you to permanently approve (white-list) sites you know are safe—like your bank's home page—and permits only those sites to execute Javascript. Access the preferences by going to the Tools menu, click Extensions, and click Options after highlighting *NoScript*. You can then add safe sites and configure advanced options. *NoScript* can even be added to the status bar, letting you allow or forbid the current site on the fly.

Block dubious sites or add trusted ones from the status bar.

SEARCH

There are plenty of search toolbars that promise to give you the information you want, but *Clusty Toolbar* soars above the herd. It has the standard search input area that can search for and highlight keywords on the page; but what really sets *Clusty* apart is its link to the über-cool Wikipedia encyclopedia. Select any word or phrase on a web page, right-click, select Get Encyclopedia Clip, and you'll be served instant intelligence about the selected text from Wikipedia. The encyclopedia clip even opens in a small window, so you never have to leave your original page. If your curiosity is piqued, simply access the full Wikipedia entry via the link at the bottom of the clip window. Instant dictionary results as well as web searches for the selected text are also available. Groovy.



***Clusty's* integrated Wikipedia tool makes quick work of serious research or casual web slumming.**

While you're at it, why not tweak Google to provide results with a perfect fit every time? You can do it with *CustomizeGoogle*, an ingenious extension that lets you take control of the world's most popular search engine. If the ads on the search-results page are bugging you, simply remove them with a tick in the *CustomizeGoogle* option menu. Ads powered by Google will now disappear, and you can banish ads in *Gmail* as well.

CustomizeGoogle taps into every component of Google, including News, Groups, Images, and Froogle. It can even display links to other search engines based on your search criterion, right on the Google search-results page!

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MESSAGING

There exists an exotic species of hominid who communicates exclusively through text messaging, and they have the giant thumbs to prove it. You can establish diplomatic relations by sending text messages to their cellphones via email, but it's always a hassle because you need to know the carrier's domain, and in turn, the carrier itself. *Teleflip*, on the other hand, bridges the gap by allowing you to use any SMTP (outgoing) mail server to send SMS text messages to cellphones, so you don't have to know all the minutiae of your carrier's info.

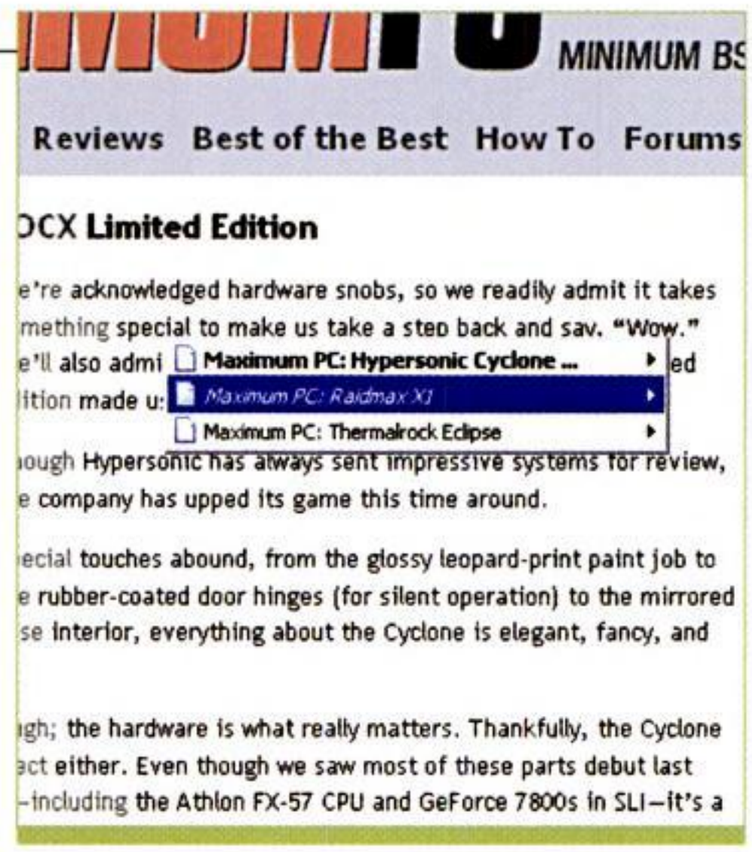
You can find your SMTP server information in the Accounts setting of your mail program, or in the Help section of your free web-based email service. First, access the *Teleflip* settings in the Tool menu. Input your email address, server information, username, and password and you're all set to text your heart out. To send a message, access the *Teleflip* tool in the Tool menu and click Send a Text Message. After entering the recipient's cell number and your message, hit OK. *Teleflip* then zaps your communiqué over the net and into the airwaves.

Absent-minded ambassadors can take comfort in *Der Browser Timer*, der best way to remind yourself to send a thoughtful message, with a countdown-style timer or audible and visual alarms that jog your memory at regular intervals.

TIME SAVERS

Tabbed browsing is just plain cool—how did we ever live without it? The same can be said about a nifty little extension that makes switching between tabs even easier—the *Tab Scroller*. Just hold the right mouse button down and move the scroll wheel, and the page names of every tab will be displayed in a popup menu. Use the scroll wheel to select the desired tab and, voilà, you're there. It's quick and makes life easier, especially if you're an incorrigible tab-maniac.

Autocopy takes the Ctrl-C out of copying text. When it's active, any text that's selected with the cursor is automatically copied to the clipboard. *Autocopy* can be configured to turn on or off via the status bar, context menu, Edit menu, or all three.



A turn of the scroll wheel is now all you need to change from tab to tab.

FARES, WEATHER

If you're constantly leaping from airport to airport, or even if you're just planning an upcoming vacation, the *FareWatcher* extension is a great way to stay abreast of the best airline prices. The extension sits on the status bar and relays customized fare results via RSS from Farecompare.com. The Settings menu allows you to tailor the results by limiting price and specifying the airline and service type (coach, business, or—you lucky bastard—first class). It's currently limited to domestic flights within the U.S., however.

ForecastFox is like having your own personal meteorologist hanging out on your status bar. Powered by Accuweather.com, this extension shows current and forecast weather as well as regional satellite information. Plus, you can create profiles defining location and unit of measure; so you can get the weather in your hometown in Fahrenheit and then effortlessly check the conditions in Glasgow, in Celsius, just by switching profiles. MPC

Ask the Doctor

Diagnosing and curing your PC problems

DIFFERENT DRIVE, SAME CD SNAFU

I have Plextor's 716SA SATA DVD burner, and it appears to dislike random CDs. At first I thought it was a problem with older, damaged CDs, because my computer would reboot spontaneously every time I got to

*disc four of **Baldur's Gate II**. But I experienced the same problem on disc five of **The Bard's Tale**, straight outta the box.*

Suspecting I had a bum drive, I went out and bought a standard IDE CD-ROM drive—nothing fancy—and it does the same thing with the exact same discs.

I've got all the newest drivers and firmware for my BIOS. I also tried removing the SATA DVD drive, and yet I get the same error with the other optical drive. Any ideas?

—SPC Clark

From the description of your issue, it sounds like your motherboard is based on nVidia's nForce4 chipset. This product certainly didn't have the smoothest rollout. One of its early quirks was that it didn't play well with some optical drives, including Plextor's 716SA. Poor planning? Cultural differences? Only the Intelligent Designer knows for sure. But the Doctor suspects the cure for your ills is to reinstall your Plexy and upgrade its firmware with the most current version available on Plextor's website. Firmware version 1.08 ironed out virtually all issues the PX-716SA had with the nForce4 chipset.

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Stream Net Radio TO YOUR MP3 PLAYER

Hosting audio content on a website used to be difficult and expensive, and usually required Real Player. But as with most technology, what's tricky in one decade becomes trivial in the next. Today, any blogger with rudimentary audio-recording gear can deliver high-quality broadcasts.

Even better, intrepid hackers have written software that will automatically transfer audio tracks from the net to an iPod or any other MP3 player—giving rise to the term "podcast." Thousands of music lovers are now creating their own podcasts, featuring new music from podcast-friendly indie labels. Production values range from radio-quality to dude-in-the-back-of-his-van, but it's a fabulous way to find new music relatively untouched by the "music industry."

But you needn't limit your listening to what's most easily available. You'll find loads of streams from radio stations and other sources, and though they're often in difficult-to-copy formats, sucking them directly from the net to your MP3 player can be simple—if you have the right software. You'll also encounter some programming that isn't streamed over the net at all: if you connect your AM/FM tuner to your PC, you can record anything broadcast over the airwaves and listen to it whenever you like.

Note: Recording this material for your own use is as legal as using a PVR to time-shift a television show. Distributing these files, on the other hand, is most likely illegal. Play it safe and download this stuff solely for your own enjoyment.

With that disclaimer out of the way, get ready to move beyond radio.

BY WILL **SMITH**

Forget over-the-air and satellite broadcasting. Internet radio is fresh, unfiltered, and free

Rip Traditional Internet Radio

Creative Labs has quietly been shipping a utility that lets you rip damn near anything that comes out of your computer's speakers. It's called Audio Stream Recorder, and it's most likely on your Sound Blaster's installation disc. If you own a supported Creative Labs soundcard—all the way back to the Sound Blaster Live days—you can download the app as part of Creative's MediaSource software.

Once installed, the app makes ripping audio streams as simple as typing in the stream's URL and clicking OK. In fact, this program will let you record anything that it doesn't think is protected, which means it will record just about anything except DVD-Audio—which isn't a huge loss, in our opinion. Audio Stream Recorder won't automatically transfer the ripped file to your MP3 player, but you can use the same Monitor Folders trick we described in the section above.

Don't have a Creative Labs soundcard? The Winamp plugin Streamripper (**streamripper.sourceforge.net**) will accomplish the same trick for any audio streams that Winamp will play. Download and install the plugin, and then select the Configure Plugins option from the menu. Set the directory where you want the streamed files saved and you're set.

OUR BOOKMARKED FEEDS

The hard part about podcasting is sifting through the millions of crappy podcasts for those 10 gems you'll listen to every day. Here are a few of our favorites (the URLs are case-sensitive):

- **INSOMNIA RADIO**
  http://webpages.charter.net/jevangelho01/IR.xml
- **RADIO CLASH**
  http://www.mutantpop.net/radioclash/rssfeed.php
- **INDIEFEED MODERNROCK**
  http://radio.weblogs.com/0141318/categories/altModernRock/rss/.xml
- **ENGADGET**
  http://media.weblogsinc.com/common/videos/pt/rss.xml
- **THE GOOD STUFF**
  http://rizzn.net/Scripts/podcast/rss/Nucks1.xml

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Listen to Podcasts on Your iPod

It's easy to listen to podcasts on your iPod using *iTunes* version 5.0 or higher. Go to www.apple.com/itunes and download the application (it's free!). Once it's installed, launch the program, and click Music Store in the menu at the left. In the Music Store select Podcasts. The vast selection will seem overwhelming. Fortunately, it's easy to browse by category, or if you know exactly what you're after, simply enter the podcast's name in the search window. To subscribe, highlight the name of the podcast you want and click the Subscribe button. Choose as many as you want—they're almost all free!

Each podcast you subscribe to will be added to your *iTunes* library. Say you subscribe to the *60 Minutes* podcast, *iTunes* will download the most recent episode and all subsequent episodes automatically.

You can then configure your iPod to automatically receive podcasts (you choose which ones, and the number of episodes) from the *iTunes* library every time you connect the device to your PC.

***iTunes* Music Store offers a bounty of options. This screen reveals just the tip of the iceberg. Luckily, *iTunes* makes the selection easy to navigate.**

***iTunes* lets you automatically download as many independent podcasts as you'd like from the Internet, and then automatically copy them to your *iPod*.**

Rip Straight From the Air

You'll need a tuner to rip audio from the radio. Many TV-tuner cards include an FM tuner, but AM tuners are rare. Griffin Technology's RadioShark (**www.griffintechnology.com**) is a $70 AM/FM tuner that plugs into your PC's USB port. It comes with software that behaves much like a PVR: You can listen to the radio in real time, but you can also pause and rewind live radio. And, of course, you can program the software for time-shift recording.

Once you've plugged the RadioShark into your USB port and installed the software, you can schedule a recording by clicking the Sched button and then clicking Add. Set the schedule, quality, recording location, and desired format—the RadioShark records only to WMA and uncompressed WAV formats on the PC at this time—and click OK to create your recording. The RadioShark can't turn on your PC when it needs to record. If you want to record something when your computer wouldn't otherwise be on, you'll need to go into the BIOS and set it to turn on a few minutes before your broadcast starts.

The RadioShark is a PC-based radio tuner. Use it to not only listen to radio programming on your computer, but also to record any radio broadcasts.

RadioShark makes it a snap to schedule recordings. Although there's no easy-to-use list of programs, it's easy to select the time, duration, and file format for your recordings.

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Optical Disc **Tricks!**

Make a hybrid audio/data disc, tweak your DVD-Videos for higher compatibility, and create custom bootable CDs and DVDs

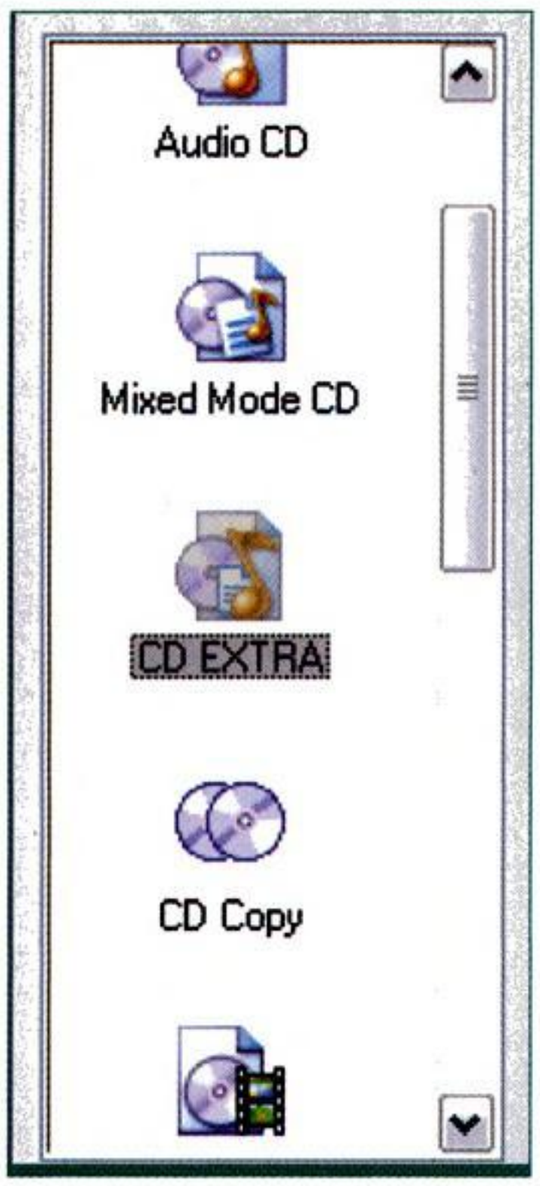
TIME 00:35 HOURS:MINUTES

Making an audio CD these days is as simple as drag-and-drop, and every disc-mastering program comes with software to walk you through the process of creating fancy-lad DVD menus for your video. But there's more to your optical drives than common tasks like these. You can, for instance, add data files to your audio CD (including cover-art images or digitally compressed versions of the songs) without losing compatibility with CD players. You can also boost the set-top compatibility of your DVD-Video discs with a couple of simple tweaks. You can even create your own custom bootable discs with all the utilities you might need for a rescue job. Master optical-disc burning, and you'll be able to deliver miracles that leave recipients of your discs in awe!

BY LOGAN **DECKER**

Burn Music and Data on the Same Disc

1 Choose your format



Your software might offer you several ways to combine audio and data on the same disc. The Mixed Mode and Pre-Gap methods, if they're available, should be avoided. These methods put the data track ahead of the audio track, and older CD players may attempt to "play" the data track. The result is a horrible screech—only slightly less unpleasant than a dentist's drill—that could damage your speakers. Instead, choose CD Plus or CD Extra, which are the same thing. CD Extra writes the audio tracks first, and then writes the data last in a single track. Because it closes the audio portion of the disc (called a session) before it starts a new session to write the data tracks, your CD player, which cannot see beyond the first session of a disc won't stumble into the data area.

Even if your disc-mastering software doesn't support CD-Extra by name, you should be able to approximate it using session-at-once (SAO) recording. Just start a multi-session disc, record the audio tracks in the first session, close it, then write the data in a second session, making sure to finalize the disc after that (you'll usually find that option on the last screen you see before you begin burning).

We used *Nero* to create our CD with audio and data files, but any application that supports either the CD Extra or session-at-once (SAO) recording format will work fine.

MATERIALS

- **CD AND/OR DVD BURNER**
- **OPTICAL DISC MEDIA**
- **WINDOWS XP PRO OR HOME**
- **WINDOWS XP SERVICE PACK 2**
- **ROXIO EASY MEDIA CREATOR**
  $100, www.roxio.com
  OR NERO ULTRA EDITION
  $80 downloadable, $100 boxed
  www.nero.com

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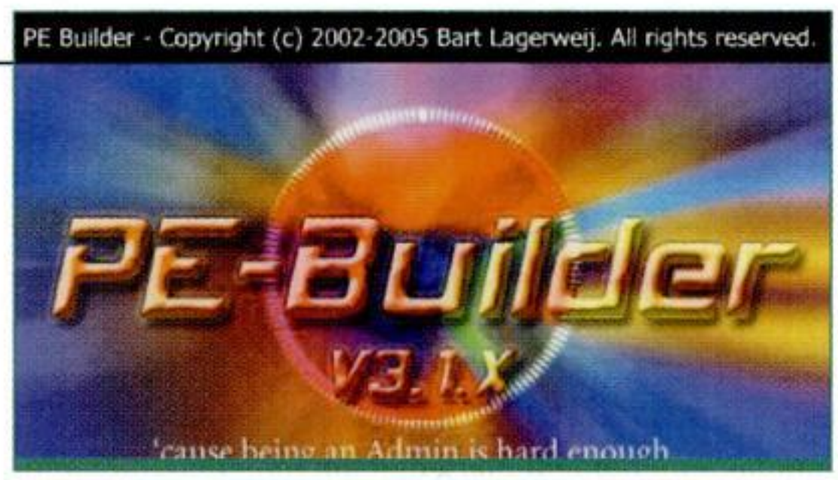
Make a Bootable CD-ROM

1 Prep work

If Windows doesn't feel like starting up and your files are being held hostage, booting into a DOS environment with a floppy disk or floppy emulation won't help much because you can't access NTFS partitions. This floppy-less method gives you access to all your files (provided the problem isn't with your hard drive; if it is, you have our sympathies).

Fortunately, most of the hard work's been done for you by Bart Lagerweij, whose Preinstalled Environment (called BartPE for short) has got everything you need to create a bootable CD complete with network support and even a pleasant graphical interface. Even more charming is that he's giving away the fruits of his labor for free. Yes, that's "free" as in "beer." So let's go shopping.

Go to **www.nu2.nu/pebuilder** and download *PE Builder* (now at version 3.1.3). Note: You will also need your original Windows XP installation disc (Home or Professional) as well as Service Pack 2. You can download Service Pack 2 at **www.microsoft.com/windowsxp/sp2/default.mspx**.



The emblem of Bart Lagerweij's Preinstalled Environment bootable CD grindhouse. If you're serious about making sophisticated bootable discs, you'll be spending a lot of time with *PE Builder*.

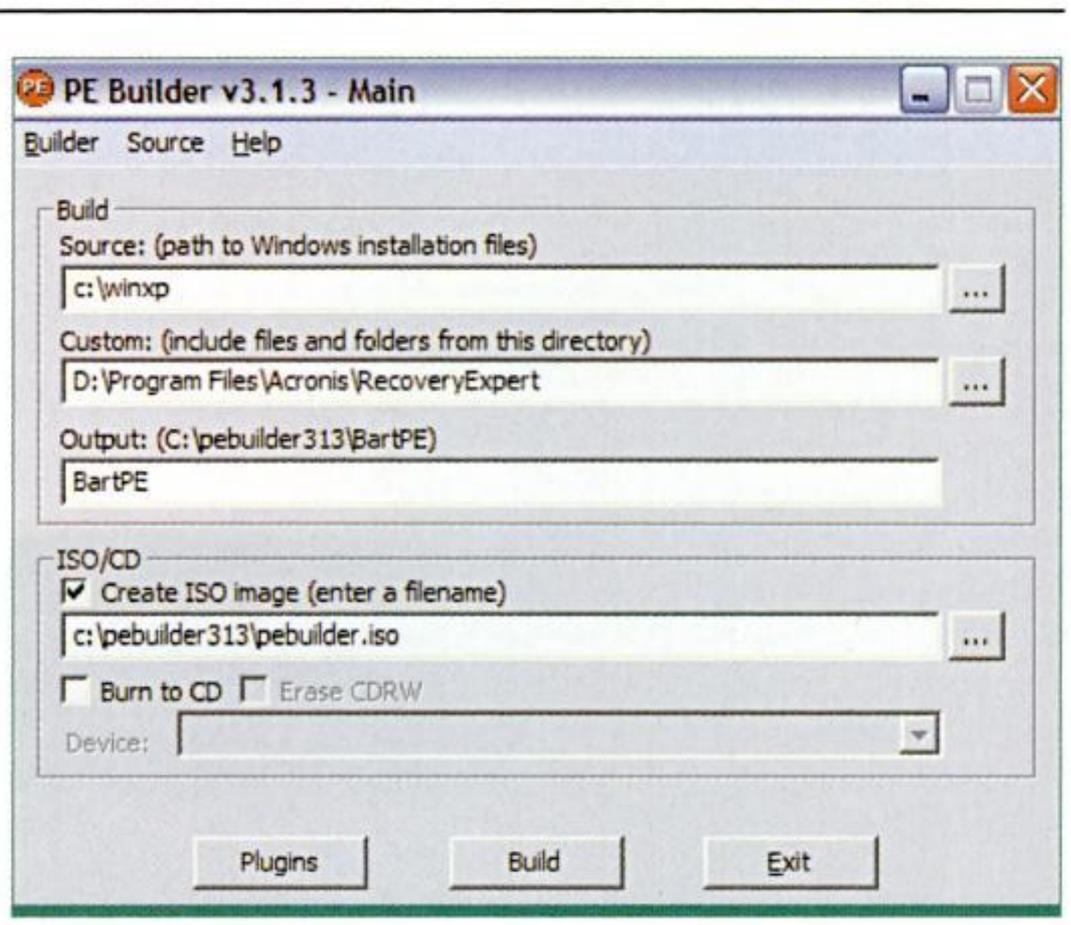
2 Rip your OS discs to the hard drive

Put your Windows XP disc in the drive and copy the contents to a folder on your PC, preferably close to the root directory of your C: drive (you'll understand why in a second). Next, create another folder for SP2 and move the contents of the disc into that folder. Now click Start > Run and type `cmd` to open a DOS box. Navigate to the folder where you saved the SP2 installer—if you place this file near the root directory, it will be much easier to access; you can delete it later. Type the name of the SP2 installer followed by the `-s:` command-line switch, and then add the path to the Windows XP disc files you copied earlier. Do not put a space after the "`s:`" For example, if your WinXP files are located at c:\winxp, then type `xpsp2.exe -s:c:\winxp`. SP2 will integrate itself into the Windows XP installer.

A simple command-line switch will update your Windows XP installation files to include Service Pack 2.

3 Configure PE builder

Launch *PE Builder*. Under Source, enter the path to your Windows XP installation files. Under Output, select a destination directory for your finished disc image. Under ISO/CD, you have the option of saving the image as an ISO disc image, burning the results directly to CD, or both. You may also add any folders and files (such as utilities or data-recovery apps) by placing them all into one directory and entering the directory path under Custom.



From *PE Builder's* humble command center, we're opting to create an "image" of our bootable disc in the ISO format rather than burn directly to disc, so we can alter the contents later if necessary.

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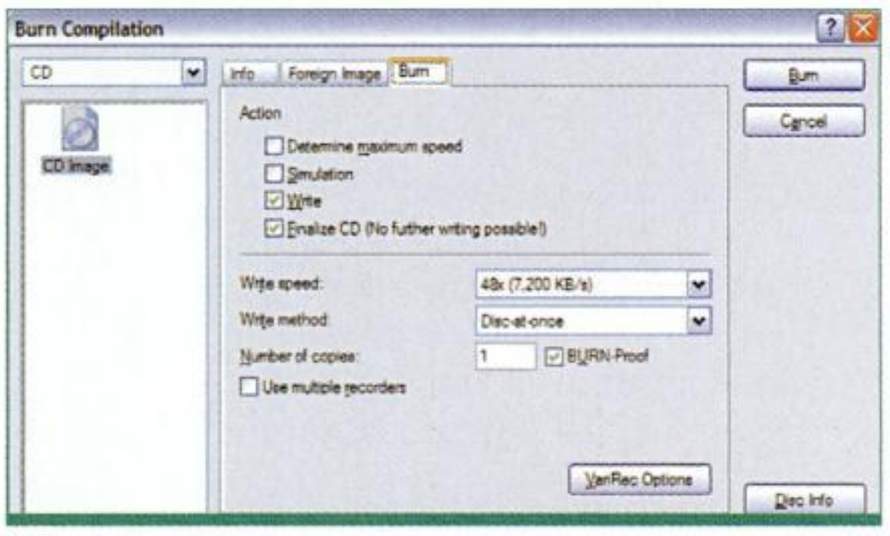
4 Bake your boot disc

PE Builder also gives you the option of adding plugins developed by Bart himself or clever third parties. These run the gauntlet from ASPI layers to disk utilities, *Ad-Aware* to mouse drivers, and they'll all be automatically added to your compilation (you can find scads of them at **www.nu2.nu/pebuilder/#plugins**). Now click Build and kick back. When *PE Builder* is done, you'll have a fresh, bootable CD-ROM (unless you chose to make a disc image instead—all you have to do is burn this image to a disc with any disc-mastering program).



The final step is to burn your disc image to a CD. Select Disc-at-once recording, and if you're worried about compatibility with other PCs, notch down the burn speed to 8x or 16x.

5 Fun with BartPE

For the real go-getters out there, creating a BartPE ISO image is only the beginning. You can find a list of the plugins included in the BartPE download at the BartPE site, as well as links to other plugins available from third parties (including commercial software developers). Here are two must-haves for a bootable "rescue" CD that won't leave you in the lurch after a disaster.

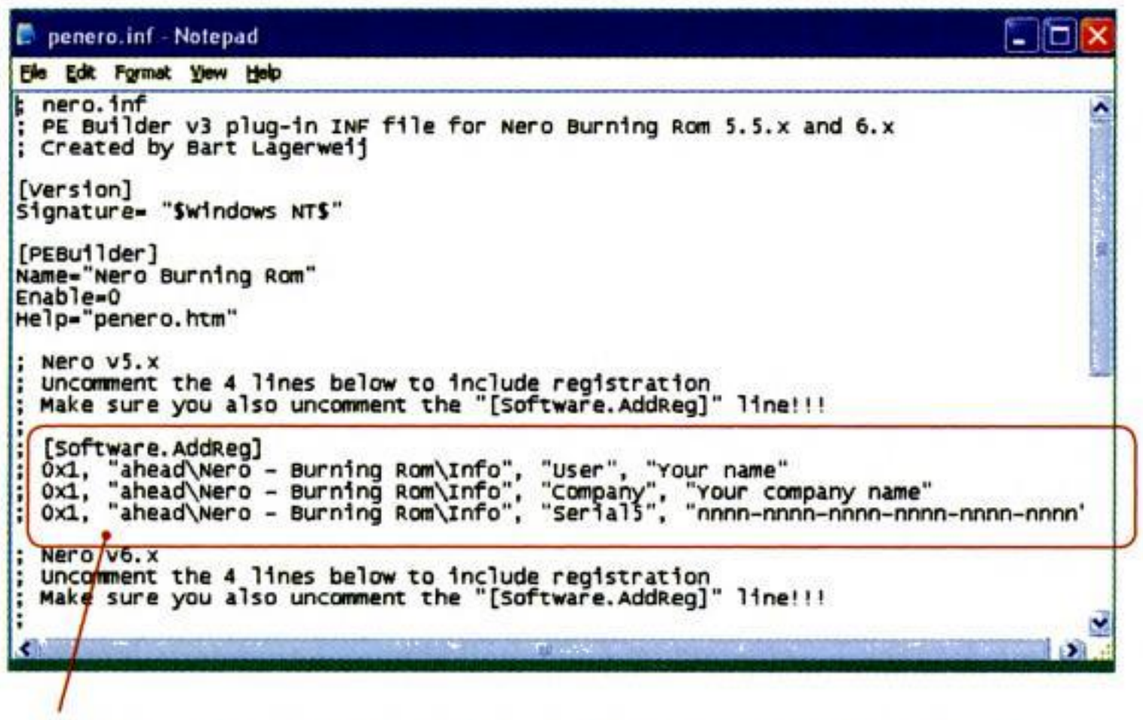
NERO

Your first priority on a wobbly system will most likely be evacuating your data. If you don't have an external drive to copy everything onto, you'll need to burn it to CD or DVD instead. BartPE conveniently comes with a plugin for *Nero* built in, but in order to use it you'll need to copy all the files from your *Nero* install (everything within the *Nero* application folder) into the plugin\nero burning rom\files directory of your BartPE plugin folder. Then open the penero.inf file in the Nero plugin folder using *Notepad*. Look for the line that says [Software.AddReg] underneath your version of *Nero* (5.x or 6.x). Note that this line and the three beneath it are preceded by a semicolon and some spaces; remove the semicolon and the spaces before all four lines, and edit the last three lines to reflect the user name, company, and serial number from your *Nero* installation.

Save the penero.inf file, and *Nero* will be available from the BartPE CD you created.

NORTON GHOST/ACRONIS TRUE IMAGE

Both of these drive-imaging programs are supported by BartPE. In fact, Acronis makes it grossly easy by supplying its own plugin for *True Image*, available at **www.acronis.com/homecomputing/support/bartpe**. Splicing in *Ghost* isn't much more difficult: just copy the following files from your *Ghost* install—ghost32.exe, ghostexp.exe, ghostsrv.exe, ghostcdr.dll—and then paste them to the plugin\ghost8 directory in your BartPE plugin folder. (Even though it refers to *Ghost 8*, this directory works just fine for later versions.) MPG



All you have to do to enable support for *Nero* within BartPE is copy the application files and edit the penero.inf file in the *Nero* section of the BartPE plugin directory.

Ask the Doctor

Diagnosing and curing your PC problems

PASSWORDS: A BLESSING OR A CURSE?

I work in a computer store selling laptops. A disgruntled customer set a hard drive password on one of our laptops, so I can't access its contents. Is there an easy way to fix this? Can this feature be disabled to prevent future occurrences, yet still allow other customers to examine our laptops?

—Bob Parlinari

The hard drive lock is there for a reason, and it appears to be doing its job, as it's not allowing you to access the drive's contents. If the Doctor told you how to bypass it, he'd be aiding and abetting laptop thieves nationwide. There's also the small matter of how the Doc doesn't think it's *possible* to sidestep a hard drive password.

The password is stored in the drive's firmware, so reformatting the drive won't erase it; plugging the drive into another machine won't work, either. If you can't guess what the secret word is, your only real solution is to obtain the password from the customer, boot the machine, and then reset it. The only surefire way to prevent this from happening to other machines in your inventory is to remove their batteries and secure their power supplies behind the counter, so the machines can't be powered up without your permission. Once you explain to your customers the reason for your caution, they'll likely appreciate the tight security this feature provides.

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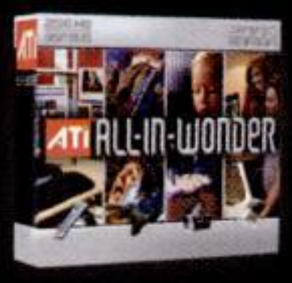

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how2 IMPROVING YOUR PC EXPERIENCE, ONE STEP AT A TIME

MASTER the Internet

We've unearthed all of Win XP's hidden tricks for putting the full power of the internet in your hands. From protecting your data and eliminating spam to protecting your children, we've got it covered.

It's true what they say: Knowledge is power. And when it comes to getting the most out of your internet experience, a little bit of know-how goes a long, long way. But with the internet changing at a bewildering pace, and new technology emerging every day, it can seem like the information you need most is being deliberately hidden from you. But don't worry. We've sent our operatives into the field to uncover all the vital secrets that make surfing the Net easy and fun. Follow our guide to make your online experience safer, faster, and friendlier than ever before.

BY ROBERT **STROHMEYER** AND JASON **COMPTON**

Internet Explorer Secrets

If the internet is an information superhighway, then *Internet Explorer* is the car the takes you there. But few people realize just how powerful this simple program really is. Sure, *IE* is the most widely used web browser in the world. And sure, it's compatible with hundreds—nay, thousands—of plug-ins that do everything from build spreadsheets to run games and animations. But it's far more than that.

Internet Explorer is a one-stop shop for browsing just about any file, viewing almost any media, and accessing darn near anything anywhere on any computer, so long as that computer is connected to yours in some way. After all, a program has to be pretty versatile to display all the different types of content you find out there on the web. And it's rare to find a file type *Explorer* can't open when given the proper plug-in software. For example, Macromedia Flash (a plug-in that lets you play animations on many websites) is now so common that your *Explorer* arsenal can't be considered complete without it.

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You can access Internet Properties either through *IE's* Tools menu, or by right-clicking *Internet Explorer's* icon.

Here's where you can set your home page and customize *IE*.

1 Explore Your Options

But to manage all the power that *Internet Explorer* has to offer, you'll need to get beneath the program's simple façade. For starters, you'll want to explorer the Internet Options menu.

Getting to Internet Options is easy. If you're already in *Internet Explorer*, just click Tools and then select Internet Options from the drop-down menu. You can also get there from the Desktop, by right-clicking on the *Internet Explorer* icon and selecting Properties. We don't know why Microsoft chose to give the same menu two different names, but it's easy enough to access, so we're not complaining.

The first page of options, under the General tab, is fairly basic. This is where you type in the address you'd like to use as your home page, delete your cache of old files from websites you've visited in the past, and clear the history log of sites you've been to. You can also use the buttons along the bottom to change the way Explorer displays pages, and even choose to have most sites display in the font of your choosing.

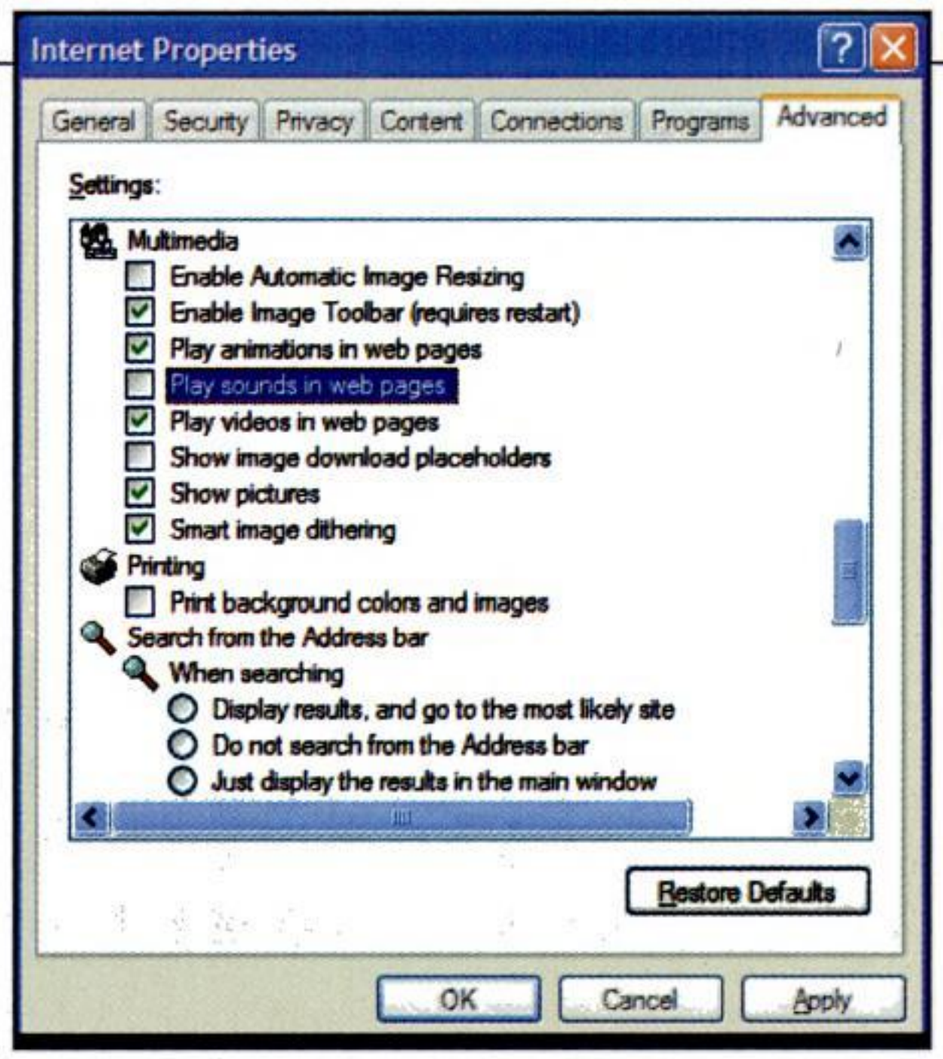
But what we're interested in is the Advanced tab, so click Advanced in the upper-right corner of the window. Here you can make detailed decisions about the way *Internet Explorer* works, saving yourself from some possible headaches, and improving your online experience.

2 Check Yourself

Checking or unchecking boxes in the Advanced tab is easy enough to do. But some checks have more impact than others. One of the first settings you should change is Install On Demand. Uncheck both the Enable Install On Demand (*Internet Explorer*) box and the Enable Install On Demand (Other) box to prevent malicious spyware programs from automatically installing themselves without your knowledge. Don't worry; unchecking these boxes won't prevent you from getting important Internet Explorer updates from Microsoft. Those are controlled by the setting labeled "Automatically check for Internet Explorer Updates."

Further down the list, under Multimedia, you'll find some options that affect the way *Explorer* views pictures and movies, and plays sounds on websites. By default, *Explorer* resizes photos so they'll fit on the screen. This severely degrades the quality of the images, and may not always be desirable. To view online snapshots in all their splendor, uncheck the Enable Automatic Image Resizing box. And if you're as annoyed as we are by those silly music files people put on their home pages, you might want to uncheck Play sounds in web pages, too.

While you're in the Advanced tab, take a look at the search options. *Explorer* likes to take you to the closest match it can find for the site you've entered in the address field. We suggest changing this setting to "Just display the results in the main window," which lets you pick the right site for yourself.



Making *Explorer* behave is as easy as checking these little boxes.

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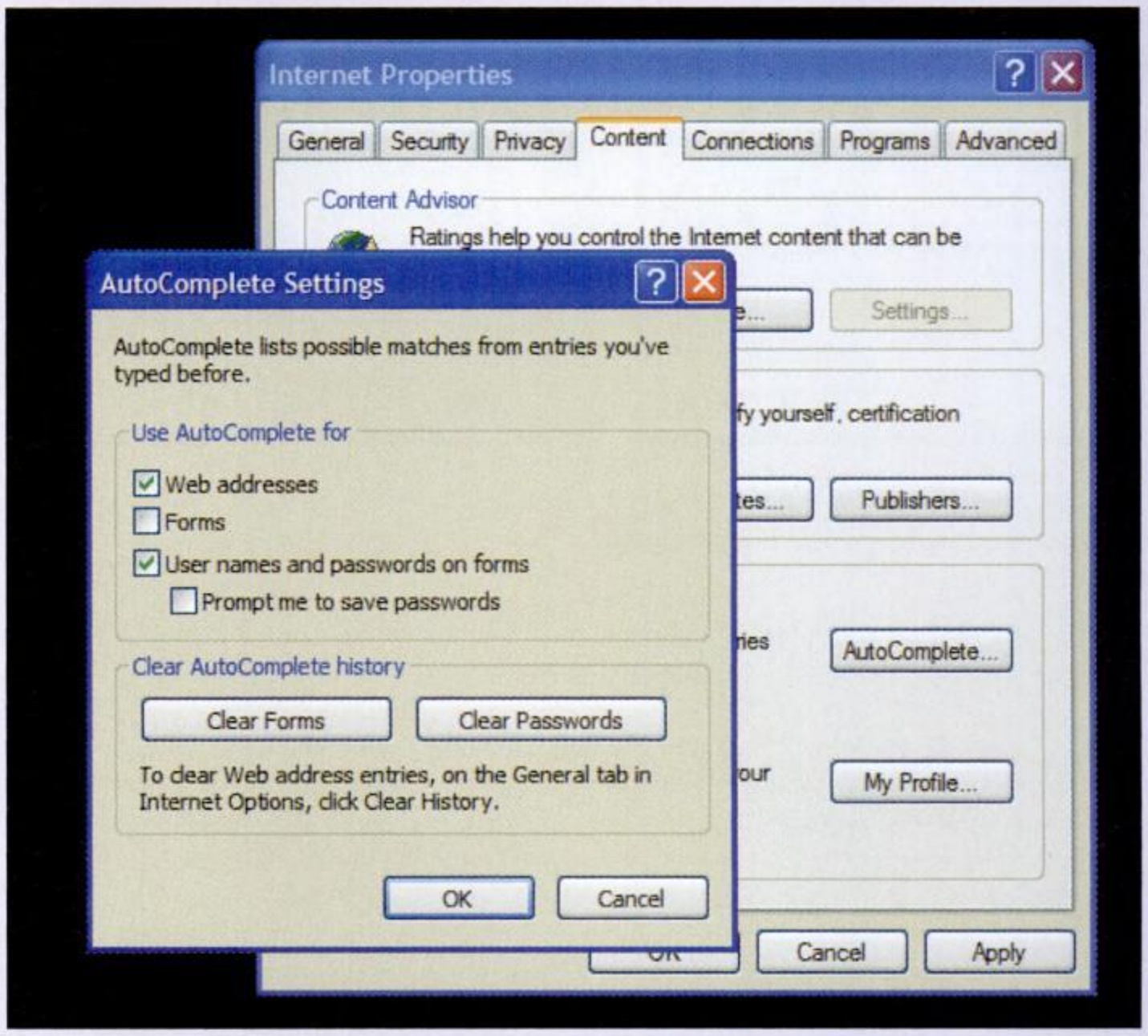
MASTER the Internet

AutoComplete

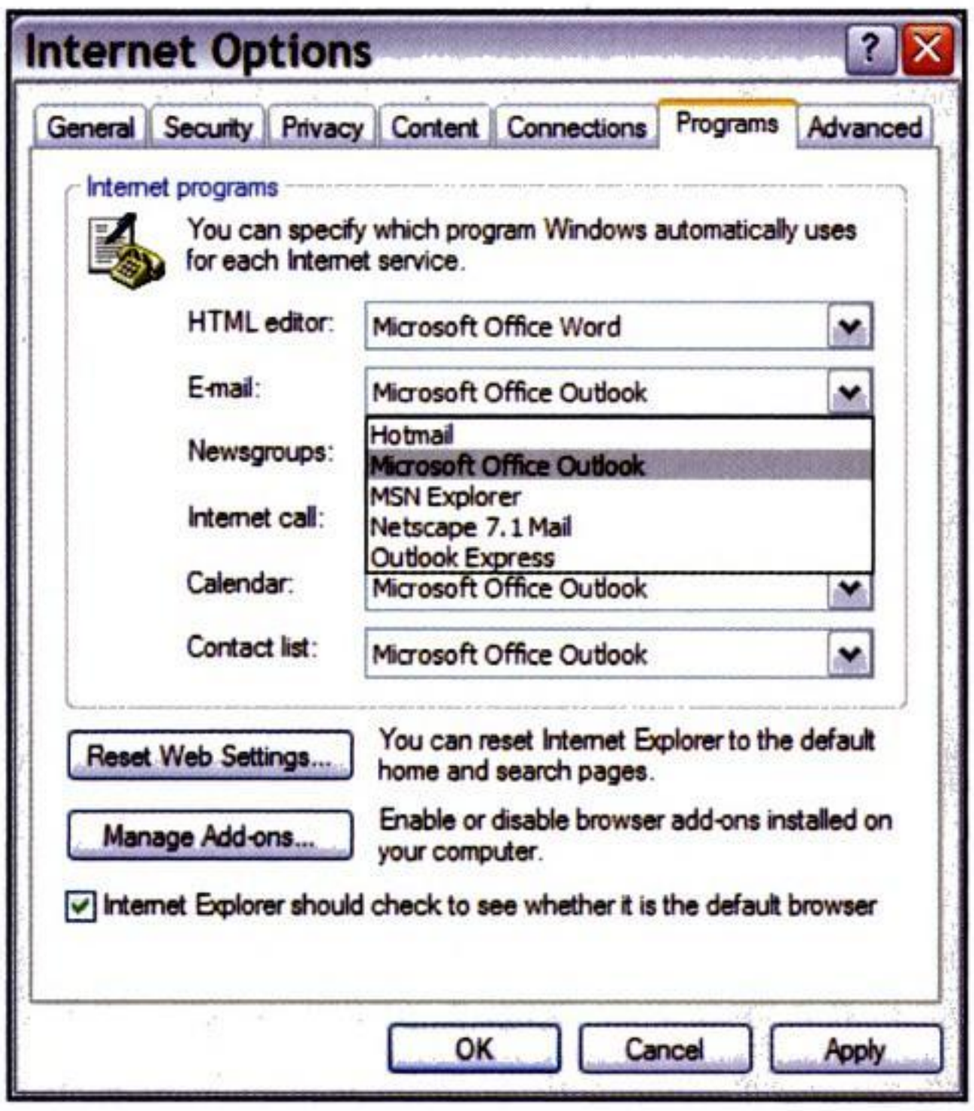
Chances are, early on in your experiences with *Internet Explorer*, you were presented with a dialog box that asked you if you wanted to turn on something called AutoComplete. And if you were feeling at all concerned about your own self-preservation, there's a good chance you clicked No. Or, if you were feeling adventuresome, perhaps you clicked Yes. Whatever the case, it's not too late to reverse your decision.

AutoComplete is a feature that automatically fills out forms for you on websites such as Amazon.com, Ofoto, or any other site that asks you for personal information. When you make a transaction at a shopping site, for instance, you enter your name, address, phone number, and even credit card numbers. AutoComplete stores this information and waits until the next time you visit a site that asks for these things. When you do, it automatically fills out the fields with the information you entered before. This can be handy if you do a lot of online shopping, but it can also be exploited by data thieves to steal your identity.

Unless you're brave, turn off AutoComplete by clicking the Content tab and selecting AutoComplete below. You only have to uncheck the boxes labeled "Forms" and "User names and passwords on forms" to protect your private information. You should leave "Web addresses" checked, because that makes it easier to navigate to sites you've visited before.



Disabling AutoComplete can help keep your personal data a little bit safer.



Get With The Programs

The Programs tab lets you decide which applications you'd like to use as helpers for *Internet Explorer*. For instance, if you click on a link to send an e-mail to someone, you might want Outlook Express to launch. Or, if you want to edit a web page, you might like Explorer to launch Microsoft Word for you. To configure these settings, click the Programs tab. For each of six actions, you can select a default program. Just click the drop-down menu for each action, and choose your favorite program from the list. It's that easy.

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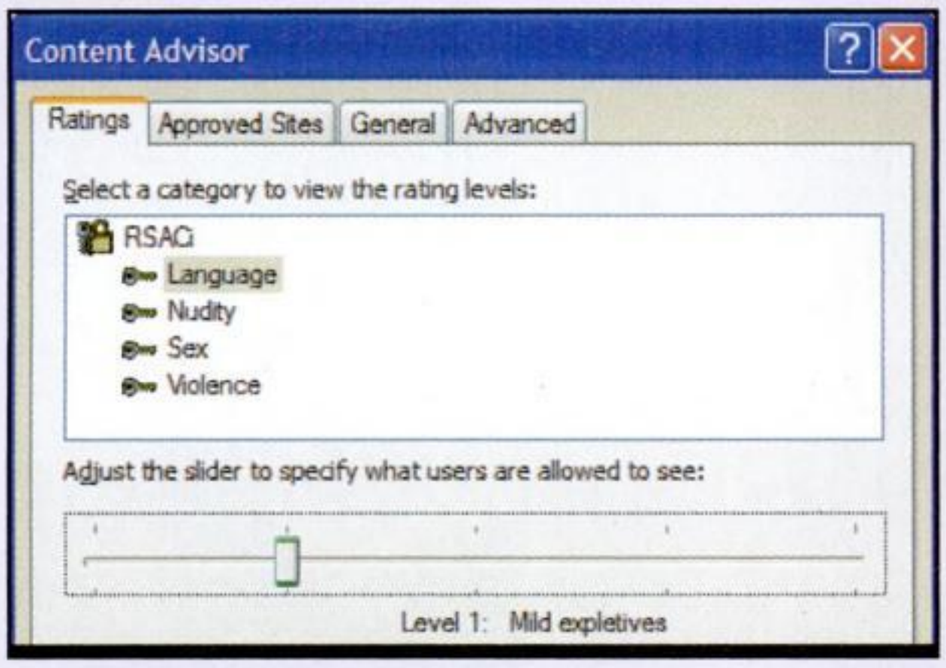
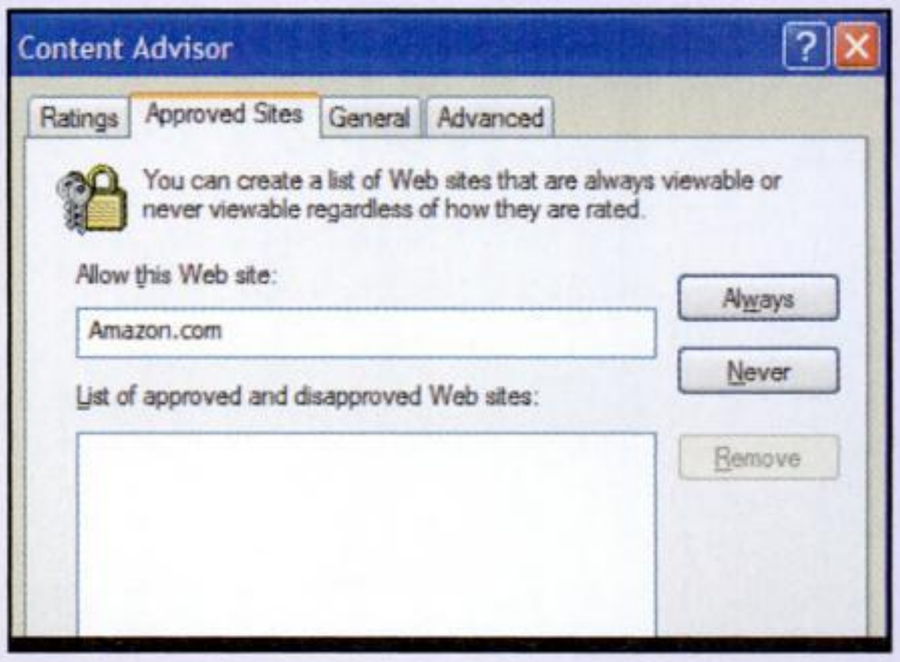
MAKE EXPLORER CHILD-SAFE



1 Set Ratings Limits

Under the Content tab in Internet Properties, select Content Advisor. This contains settings that let you decide what sites can—and more importantly, what sites can't—be viewed. The Ratings tab lets you select a tolerance level for four types of content: language, nudity, sex, and violence. For each type, just slide the control bar left or right to the level you find acceptable. The further you slide to the right, the racier things get.

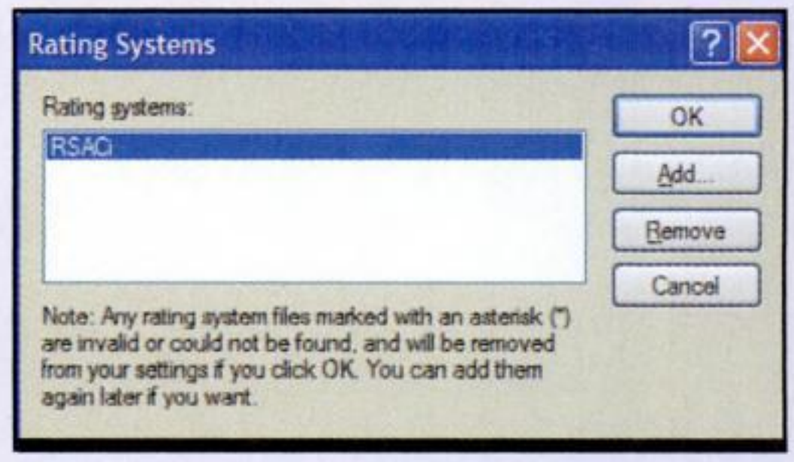


2 Give Your Approval

Sometimes perfectly innocent sites get misclassified by Content Advisor, keeping your kids from getting to sites that you approve of. Fortunately, you don't have to disable Content Advisor to fix the problem. Just click the Approved Sites tab and type in the addresses of the sites that meet with your approval. You can enter as many sites as you like, and we suggest putting in sites that may have mature themes but are generally harmless, just to make life easier.

3 Lock It Up

If your kids are smart—and we have a feeling they are—they may quickly discover Content Advisor for themselves. To keep them from changing the settings on their own, create a supervisor password by clicking the Create Password button in the General tab. By default, the General tab has a checkmark in the box labeled "Supervisor can type a password to allow users to view restricted content." We suggest leaving this boxed checked, so you can give yourself access to grown-up sites whenever you like.



4 Get Professional Help

You don't have to go it alone when it comes to protecting your children. Internet content ratings have become big business, and there are plenty of companies that offer services to help you keep tabs on the web. By default, *Explorer* includes ratings from the Recreational Software Advisory Council, or RSACi. These are generally adequate for most users, but if you need more protection, you can pay for additional services from such organizations as SafeSurf or the Internet Content Rating Association (ICRA). To do this, click Find Rating Systems, which will take you to a Microsoft-run site where you can find more information about these organizations and their ratings systems.

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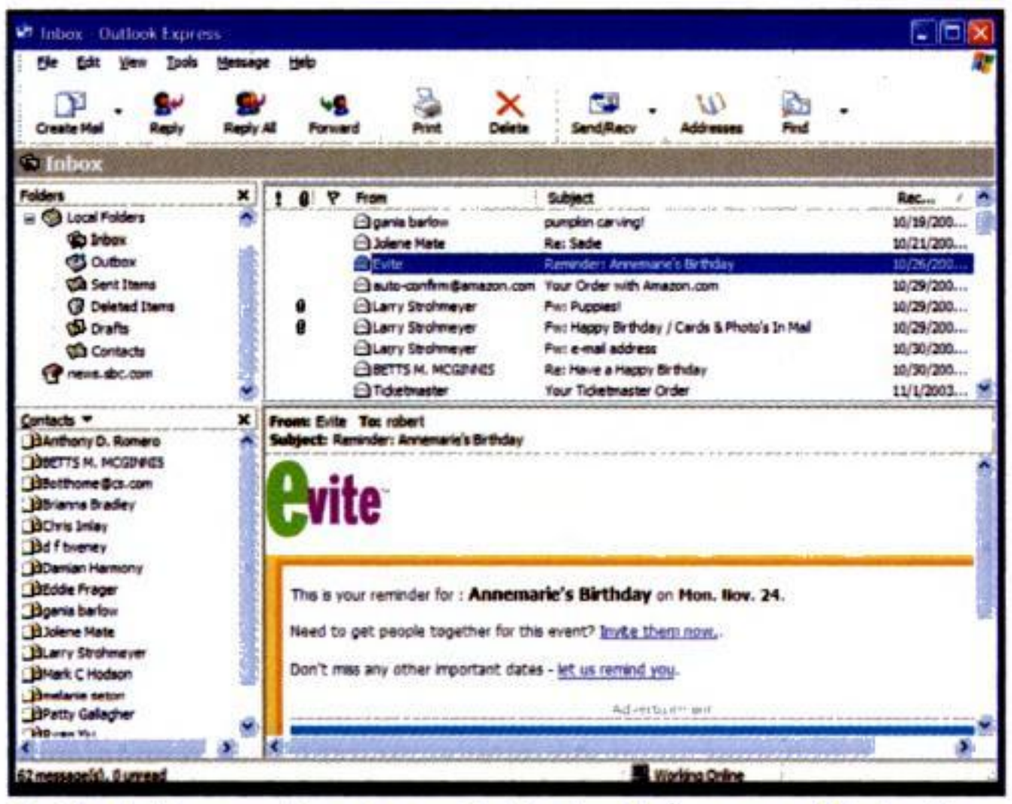
OUTLOOK EXPRESS SECRETS

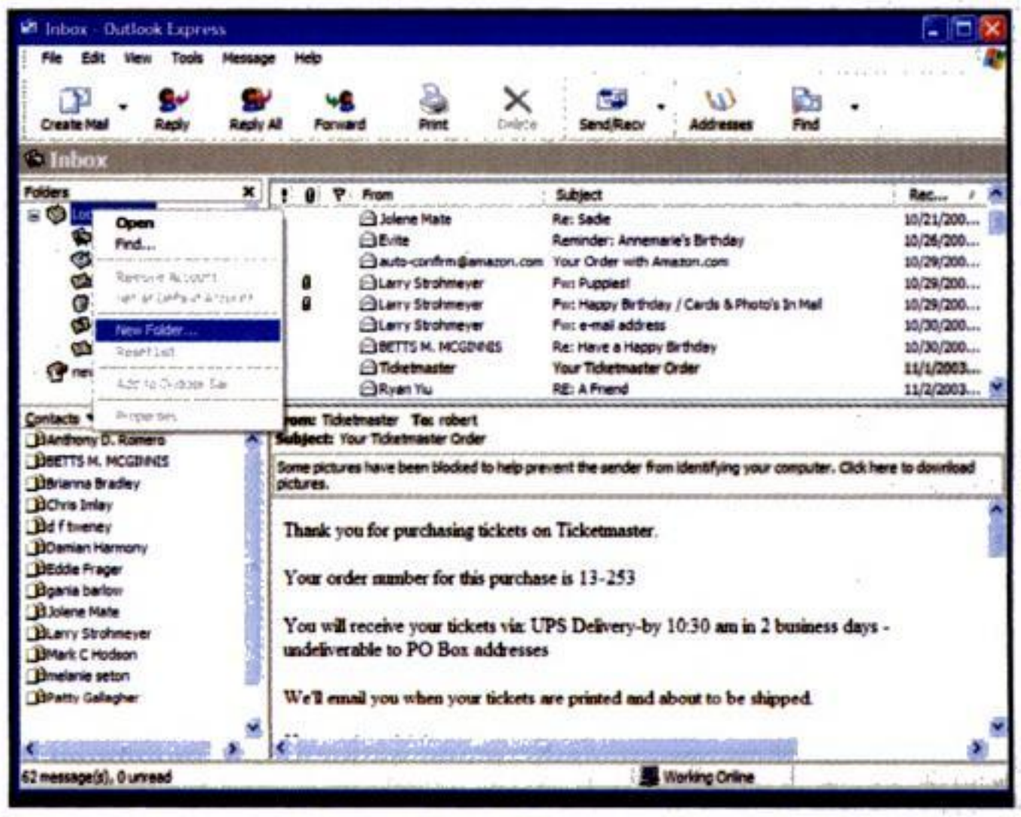
Sure, *Outlook Express* is a freebie e-mail program. But that doesn't mean you should turn your nose up at it. The fact is, Microsoft Outlook Express is plenty robust for most users, and it's plenty simple for basic e-mail. Yet it's easy to overlook some of the more advanced features that make this little mail application so great.

You don't necessarily need to spend a bunch of money to get control of spam, organize your contacts, or take advantage of some of the internet's lesser known, yet still terrific features. *Outlook Express* has plenty of power to patrol your inbox for spam, manage internet newsgroups, organize your address book, and search the online world for friends and loved ones.

To unleash this power, just follow along with us.



Outlook Express is a deceptively simple program. Under its easy exterior lies a wealth of sophisticated features.



To organize your inbox using folders, make new folders by right-clicking on Local Folders and choosing New Folder.

Organize Your Inbox

If your inbox is so crammed full of e-mail that you can barely find anything, you could probably stand to do a little housekeeping. And in your case, folders are just what the doctor ordered. Creating a series of special folders to keep your messages in will make it easy to sort through your messages when you're in a hurry.

To create a new folder, right-click on Local Folders in the Folders window of *Outlook Express*. This will bring up a pop-up menu from which you'll select New Folder. Type a name, such as Work or Personal, into the dialog box that appears, and then click OK. Your new folder will appear in the Folders window, listed alphabetically along with the folders that come preconfigured. Now all you have to do is drag a message from the main Inbox window to your new folder to keep things organized.

Automate Your Folders

Once you've made all the folders you want, you can take the hassle out of sorting by setting up rules for your messages. That way, messages will automatically move to the appropriate folders as they come in, without you having to drag everything around.

The easiest way to create a rule is to make one from a message that's already in your inbox. To do this, just click on the message you'd like to make a rule from, and then click Message in the top menu. Select "Create Rule From Message" from the drop-down menu to open the New Mail Rule window. The other way is to click Tools and then select Message Rules and Mail.

The first box in the New Mail Rule window lets you select the conditions you'd like the rule to be based on. By default, Outlook Express selects "Where the From line contains people" for you. That means that the rule will automatically perform a desired action every time you receive mail from a particular contact, and

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it's the easiest way to sort things. For instance, you may choose to put all messages from your boss in the Work folder. Or you may want to automatically delete all of the messages from your annoying neighbor.

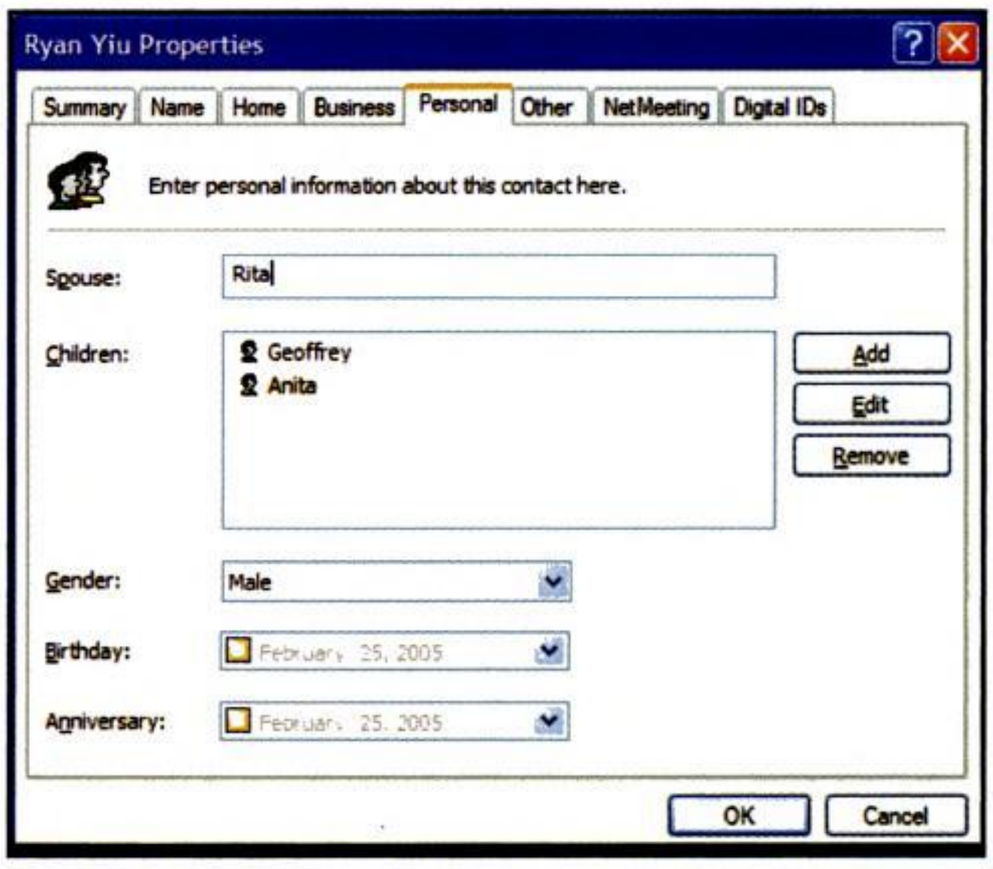
If you're creating the rule from an existing message, the box will already contain a condition based on the sender's address. Now just check the appropriate action, such as "Move it to the specified folder." While you won't need to enter any additional information if you've selected the "Delete it" option, other options may require more direction from you. For instance, you'll have to tell it which folder to move a message to. To do this, click the word "specified" in the third window, then click on the folder you want the messages to move to and click OK.

Finally, give your rule a name, such as From My Boss, or Delete Automatically, so you'll know what it is when you come back to this window in the future. To create new rules for a given action, you don't always have to make a whole rule from scratch. For instance, once you've made a rule that moves messages from certain contacts to the Work folder, you can add more people to the list just by clicking the appropriate link in the third window and adding more addresses.

Govern your inbox by setting up rules in the New Mail Rule window.

Make Contact

There's more to Outlook Express's contact management skills than just that little Contacts list in the lower left corner. The program also includes a more robust Address Book, which lets you store detailed information about each of your friends and colleagues, including their home address and phone number, work contact info, the names of their spouse and children, and even their birthday and wedding anniversary. All of this is tucked away in the Addresses window, which you reach by clicking the Addresses button at the top of the screen. It's amazing how many people overlook all the great contact management abilities of Outlook Express. For most users, this built-in utility complete eschews the need for more expensive third-party software.



You can store personal information about your friends together with their contact info.

Try Newsgroups

In the early days of the internet, almost everybody used Usenet newsgroups to share information with other like-minded people. Today, millions of people around the world still use newsgroups, though many newcomers to the Net never hear about it. But if you've got a keen interest in a particular hobby or study, Usenet is still one of the best ways to meet others around the world who share your passion.

While there are plenty of programs out there that can read newsgroups, Outlook Express competes handily with the best of them. To access newsgroups, you'll need to get the configuration info (usually just a server address) from your internet service provider. Once you've got this, click Tools, then select Accounts and select the News tab. Then click Add and News. Follow the prompts in the wizard to enter your login information and the address of your ISP's news server. When you're all set, you should see tons and tons of different newsgroups with names like alt.rec.toys.vintage or sci.botany.northamerica. Look for keywords that fit your interest, get a feel for the ongoing discussion, and join in.

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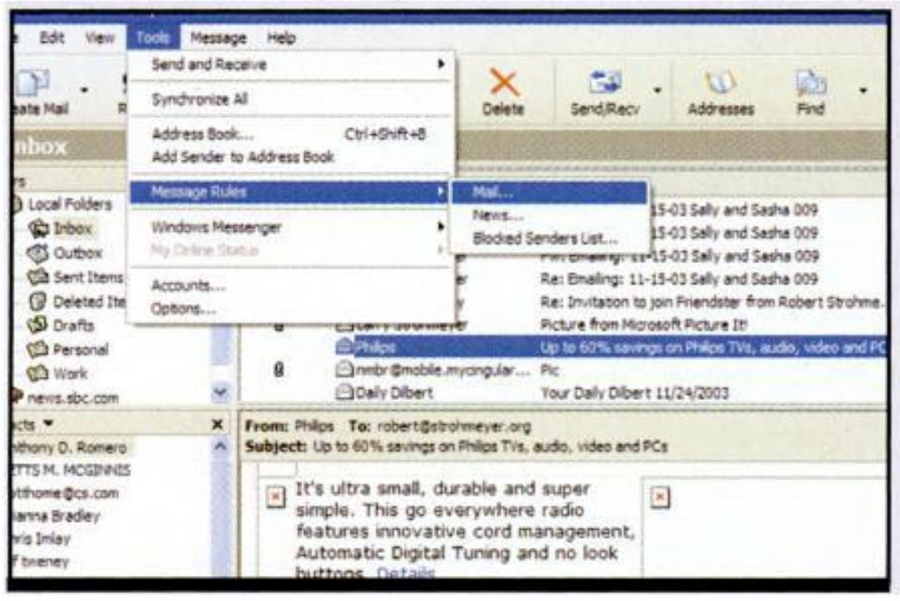
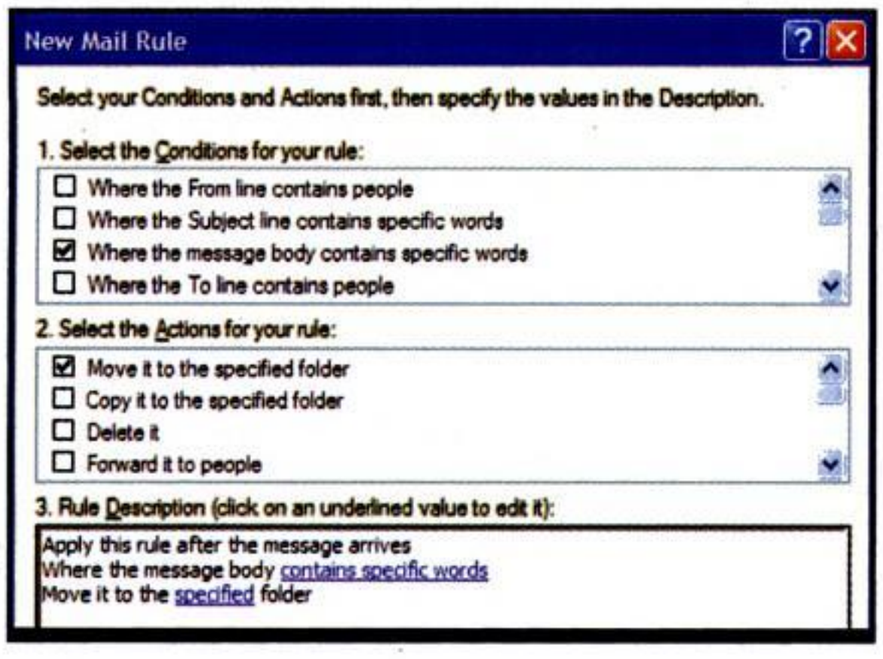
END SPAM IN OUTLOOK EXPRESS



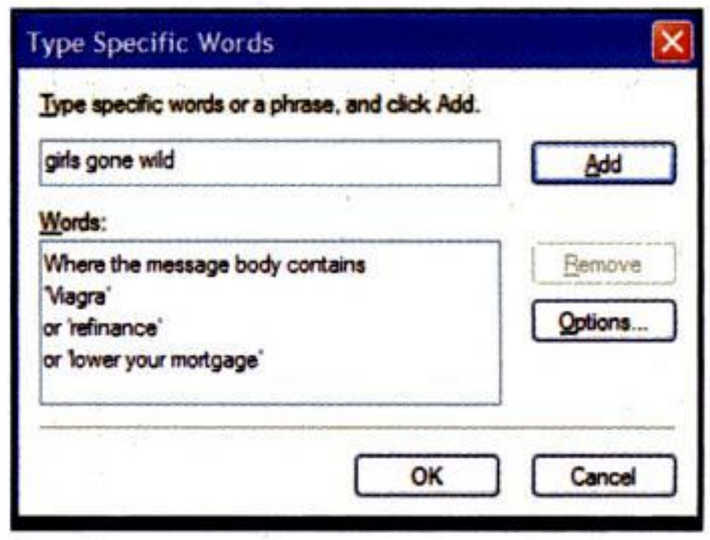
1 Make a Rule

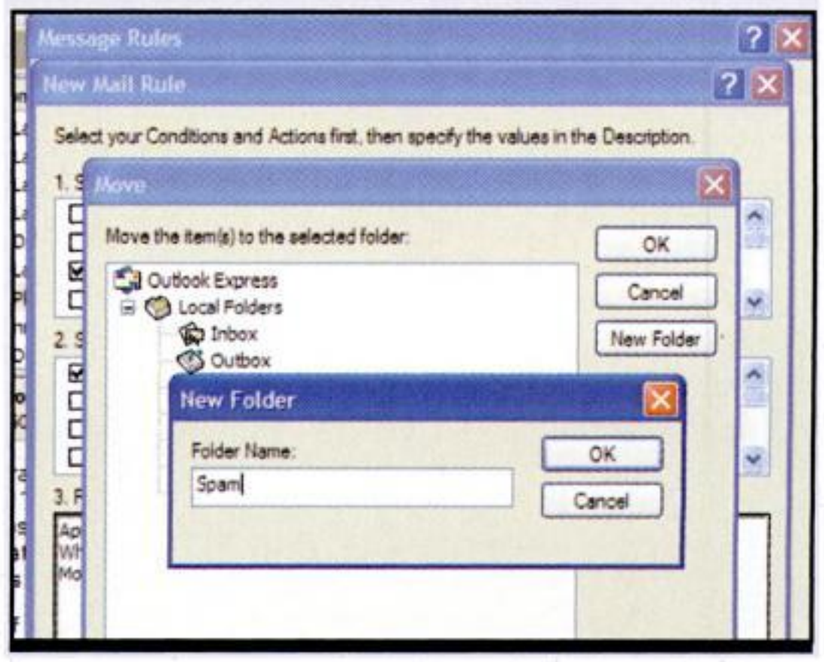
You don't need expensive software to keep spam out of your inbox. If you've got a little time and a copy of *Outlook Express*, you can make your own spam filter using rules. Since most spam messages have a few things in common, such as offers for Viagra or free mortgage quotes, it's easy to think of a few simple rules that will put a stop to a large percentage of your unwanted e-mail. To get started, open the New Mail Rule window by clicking Tools, Message Rules, then Mail.



2 Set Your Conditions

It's nearly impossible to filter spam by an e-mail address alone, because most spammers are now smart enough to use randomized address that will baffle your spam filter. Keywords are far more effective. This method won't stop all spam, because many spammers now use alternative spellings to trick your filter, such as V1agra or m0rtgage. But you can stop many of these more sophisticate attacks with a little ingenuity. Click the checkbox marked "Where the message body contains specific words."





3 Take Action

In the second window, you get to choose the fate of your offending e-mails. You may wish to simply delete them, but it maybe wiser—at least for the time being—to move them to a specific folder. To delete them, just click the box labeled "Delete it." Otherwise, chose "Move it to the specified folder."

4 Choose Your Folder

Chances are you don't already have a spam folder in *Outlook Express*, so you're going to have to create one. Luckily, you can do that from within the New Mail Rule window. In box three, click on the word "specified," which should be highlighted in blue. The Move dialog box will pop up, and you can either select a pre-existing folder from the list or click New Folder to create one of your own.

5 Name Your Poison

Finally, give your rule a name by typing something descriptive (such as "Spam") into the name field at the bottom of the window. Now just sit back and relax, with a little less annoyance in your life.

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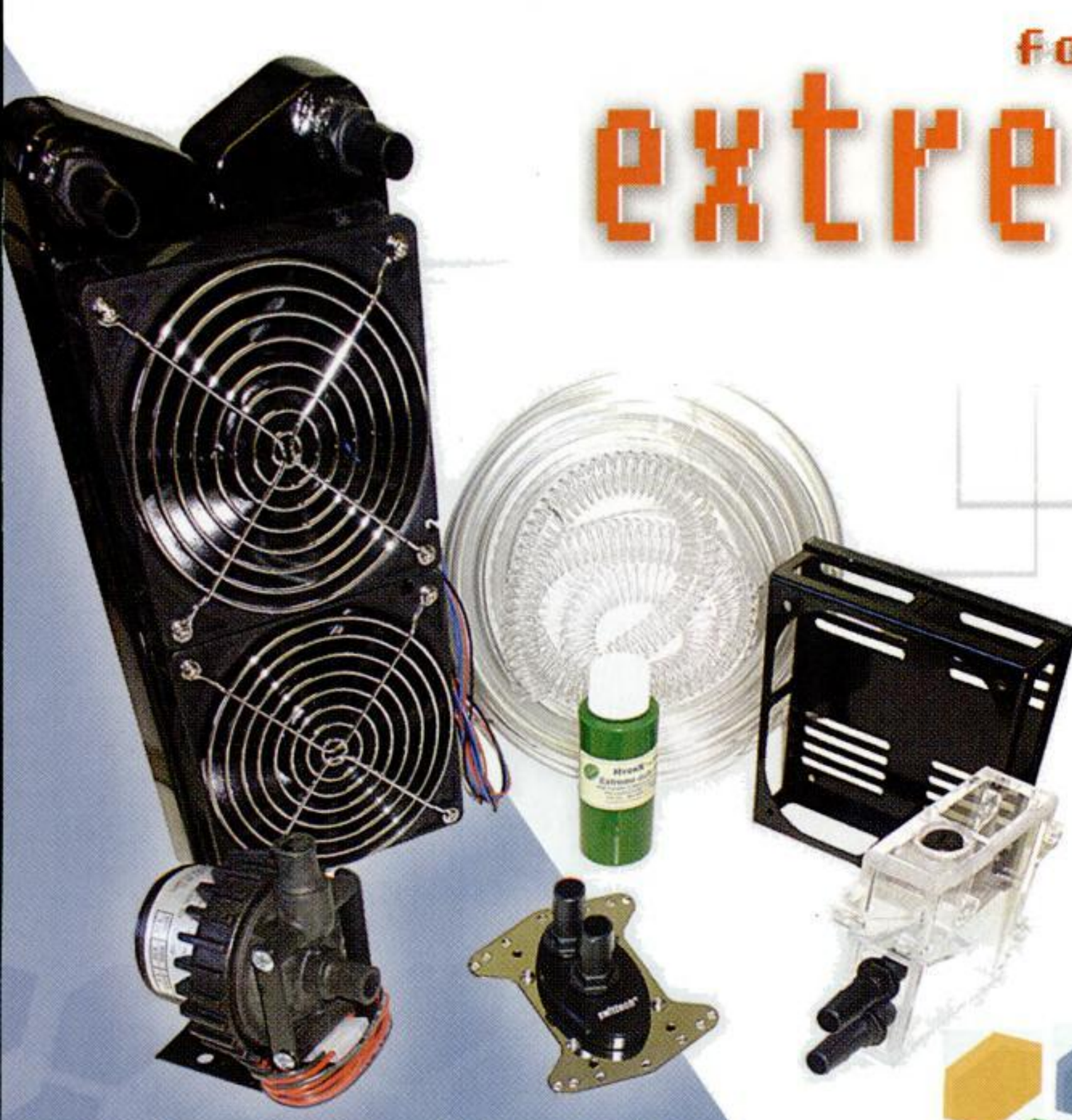

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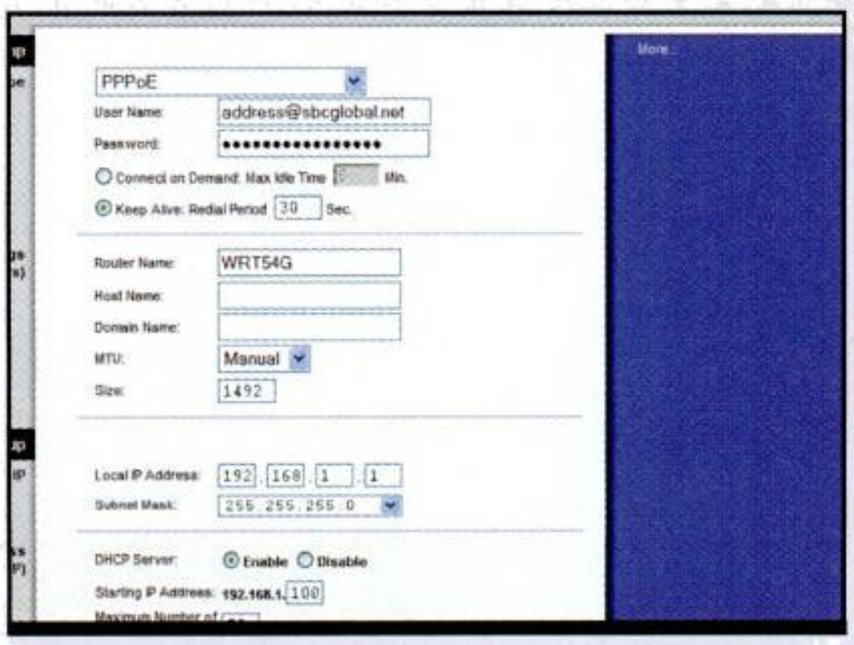
HOW TO SET UP A WIRELESS NETWORK

1 Plug In Your Router

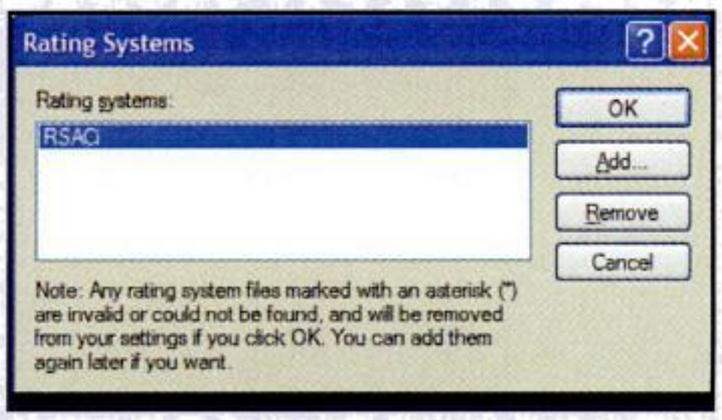
Your router is a wireless gateway to your internet connection, so you'll need to plug at least one thing into it. Typically, this will be your DSL or cable modem. Just connect the Ethernet cable from your modem into the port marked Internet or WAN on the back of your router.



3 Configure Your Connection

Just as you would enter your DSL account information into your PC, you need to tell your router how to reach your ISP. In the router's main setup screen, choose the connection type, such as PPPoE, which is one of the most common connection types, or Automatic Configuration, which is common with cable internet connections.

If your internet provider uses automatic configuration, or DHCP, your work is done here. Move on to step 4. If you use PPPoE, you need to enter the username and password given to you by your ISP.



2 Log In

Many routers come with an installation CD that will guide you through the setup process, one step at a time. This makes setup a snap. If yours doesn't have one, or if you'd like to get a better look at your configuration options, log into your router directly through *Internet Explorer*.

Every router has an IP address, usually starting with 192.168.X.X. To find the address for your router, check with your manufacturer. Most companies include this in the first few pages of the product manual. Type the IP address, such as 192.168.1.1, into the address field of *Internet Explorer*, and enter the admin username and password into the login box that pops up.

4 Set Up the Network

Setup menus vary slightly from one router to another, so you'll want to consult the manual for your router to see which menu is where. Some routers put network setup and internet connection settings under the same menu. Others, such as our Linksys, put them under separate, clearly marked tabs. In the Wireless menu, you'll select a network mode. Unless you have a lot of different computers connecting to your network, you can probably set this to 802.11g-only. But if you have older machines, or PDAs, that use 802.11b, you'll want to use mixed mode.

5 Protect Yourself

The easiest type of wireless security is WPA, or Wi-Fi Protected Access. With this method, all you have to do is give your network an easy-to-remember password, and the router takes care of the rest. In our Linksys router, this is listed as a submenu marked Wireless Security under the Wireless tab, rather than under the Security tab, which would be more sensible. Choose WPA Pre-shared Key and select the TKIP algorithm. Then just type a password into the field for your pre-shared key and save. (For more on WPA see page 15.)

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SECURE YOUR CONNECTION

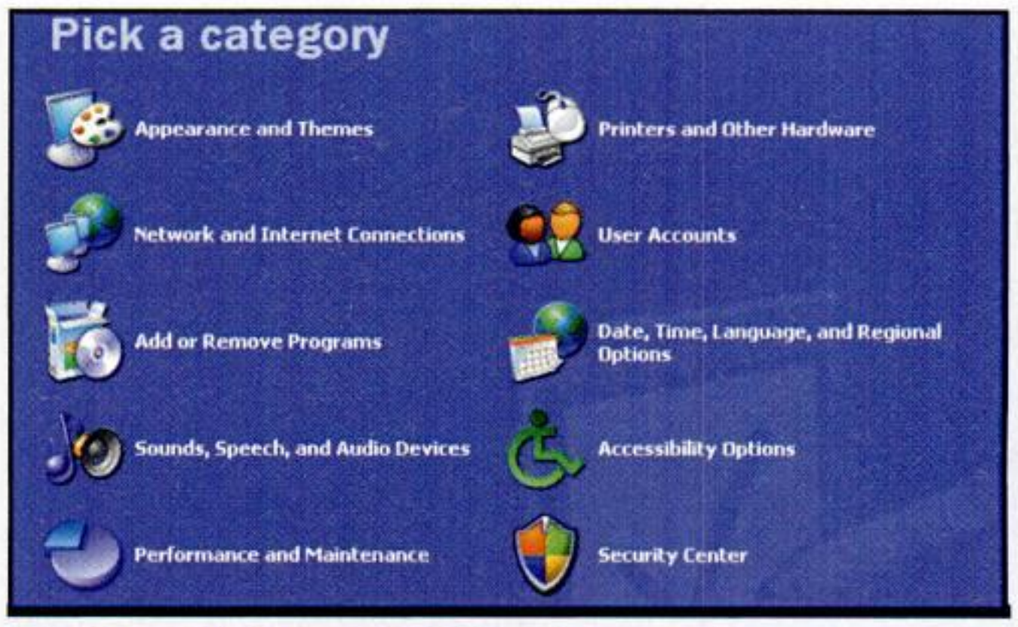
Unless you like to live dangerously, securing your Windows XP is an essential part of getting the most from the internet. After all, the convenience of online banking quickly evaporates when someone steals your account information and robs you blind. But you needn't be too worried about this sort of worst-case scenario if you take a few simple steps toward locking down your PC before you go online.

Important: The average new computer falls prey to intrusion within 15 minutes of first logging onto the internet. So it's critical that you turn on your firewall and install antivirus software before you go online. Fortunately, Windows XP Service Pack 2 added improved firewall features to your computer. But you absolutely must buy third-party virus protection if you truly want security.

1 Turn It On

Most new PCs come with the Windows Firewall enabled, so you have a minimal amount of protection turned on from the beginning. But so far, Windows XP does not include virus protection, so you'll need to buy and install an antiviral program from a company such as Symantec or McAfee. To check your security settings, click the Security Center icon in the Windows XP Control Panel. It's the one that looks like a shield.

The Windows Security Center displays the security status of your firewall, Windows updates, and virus protection. Ideally, each listing should display a green light and the word "On," indicating that three critical security components are enabled. If you have a red light and the word "Off," you are not protected. You can adjust the properties of each component by clicking the corresponding icon below.



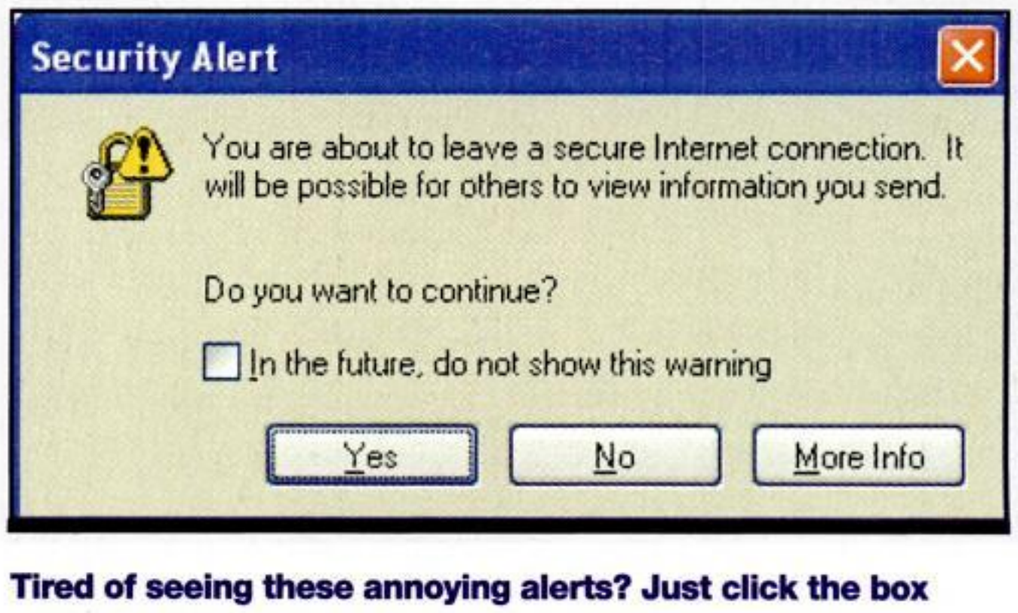
That little shield in the bottom-right corner is your first step to locking down your PC.

2 Manage Your Settings

You can adjust your settings for internet options, automatic updates, and Windows Firewall from within the Windows Security Center. To control your antivirus settings, you will need to use the utilities that came with your antivirus software, and those will vary from program to program.

The Internet Options icon opens the Security tab of *Internet Explorer's* Internet Properties menu. Here you can change the way *Explorer* handles content from various websites in four zones: internet, local intranet (computers connected to yours within your home or office), trusted sites (reliable websites that you visit frequently), and restricted sites (sites you don't trust). Each of the three zones has a default level of security, and you can modify the level by raising the control bar up and down. The higher the bar, the greater the protection.

Bear in mind that more protection also means more hassle. The more restrictive you are with your security settings, the more you will see various warning messages pop up as you surf the web. As a rule, it's better to increase your security level as high as possible, adding sites you visit frequently to your trusted sites list. This will keep you safe while reducing the number of annoying security alerts on the sites you visit most.



Tired of seeing these annoying alerts? Just click the box marked "In the future, do not show this warning."

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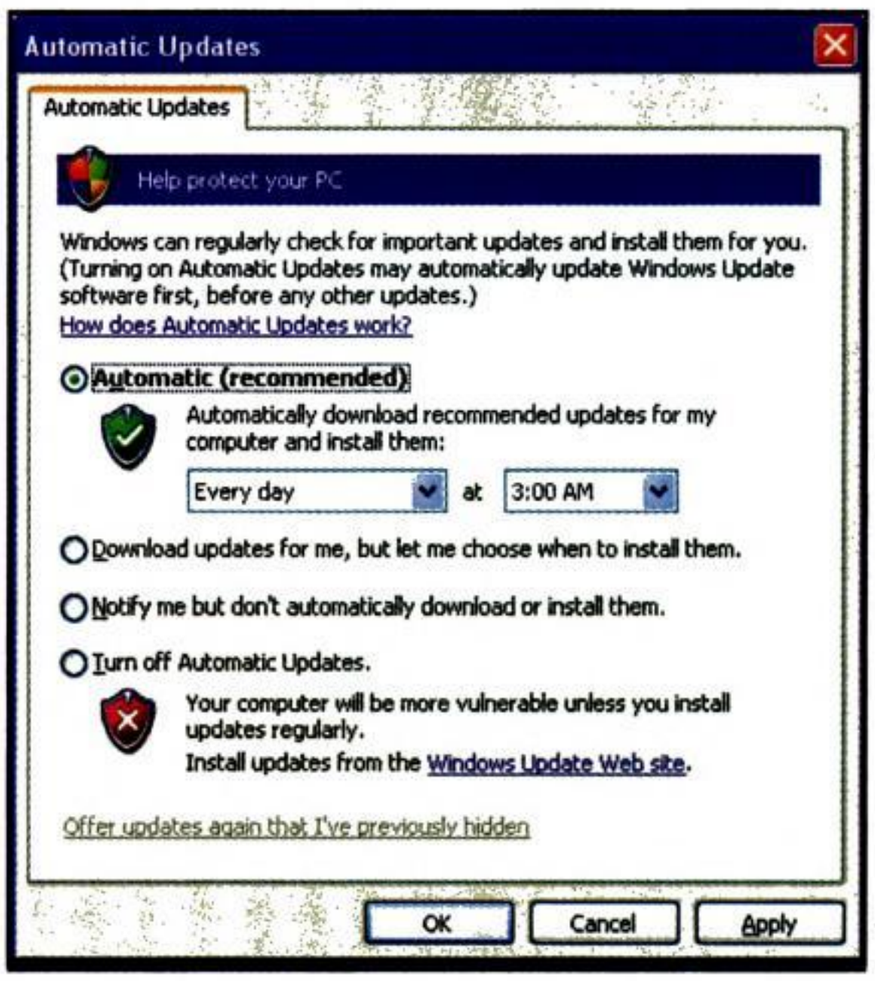
3 Get Updates

Microsoft is constantly updating Windows XP. These updates help improve the way Windows works, but they also fix vulnerabilities that could make your PC a target for attack. Many people look at this as a failure of Microsoft to produce a stable operating system, but that's hardly fair. The fact is, all credible software companies produce product updates, and there's no such thing as perfect software. Since Windows XP drives more computers worldwide than any other operating system, it's no surprise that hackers spend more energy seeking out its weaknesses. As new flaws are discovered, the company releases new updates.

To make sure you're getting the latest updates every day, enable daily automatic updates by clicking the Automatic Updates icon and selecting "Every day" from the drop-down menu under Automatic. It doesn't really matter what time you choose, because XP will simply check for updates the next time you log on if you forget to leave your PC running.

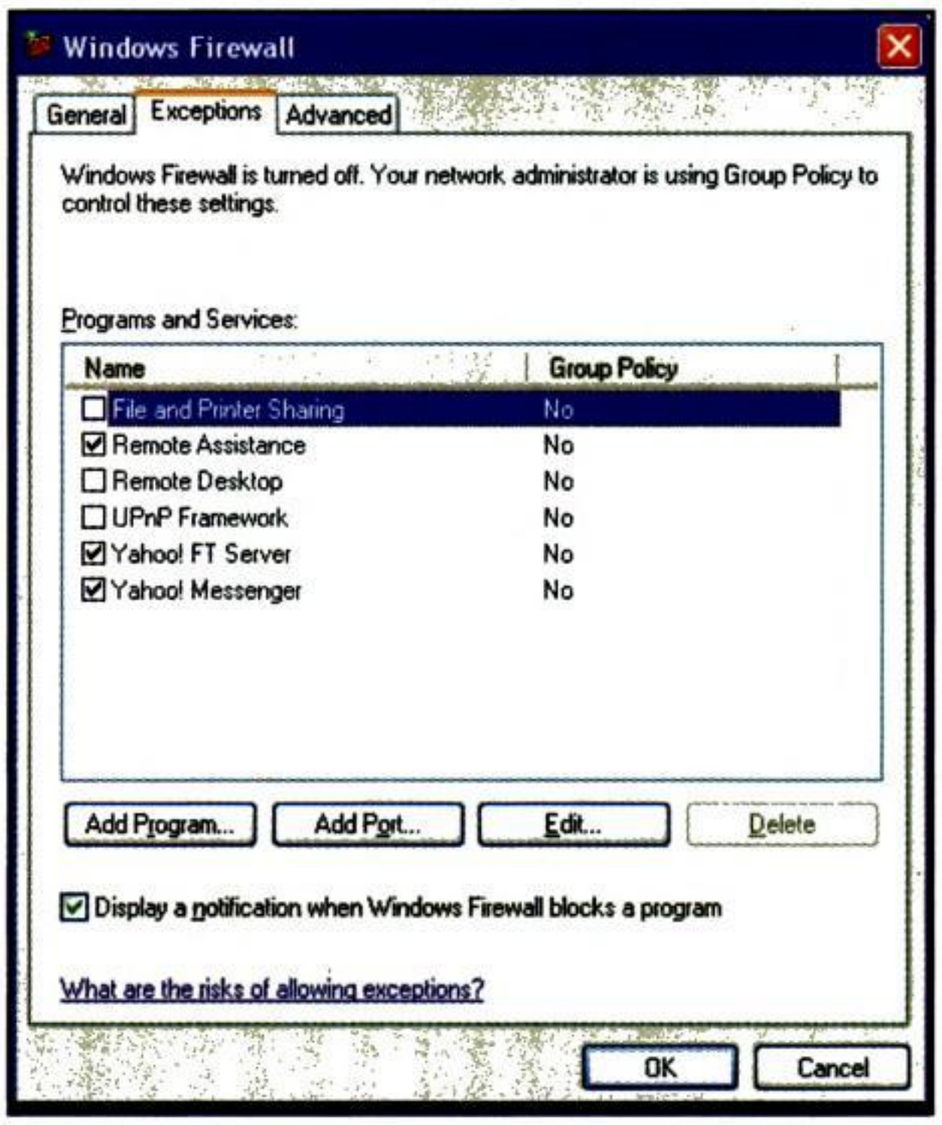


Microsoft makes regular Windows XP updates available online. Don't miss out on them.

4 The Great Wall

A firewall is your first line of defense against intruders, so it's important to keep yours up and running. Click Windows Firewall in your Security Center to make sure you're protected. For most users, the main Windows Firewall window is all that's needed. In it, there are two settings: on and off. Unless you're running some other firewall program, such as *Norton Internet Security Suite 2005*, you'll want Windows Firewall turned on and you'll want to check the box labeled "Don't allow exceptions."

Advanced users who have want to give more freedom to specific programs, such as iTunes or Windows Messenger, can do so by unchecking "Don't allow exceptions" and clicking on the Exceptions tab. Here you can put a check mark next to the programs you want to unleash. If you do decide to allow exceptions, be warned: Some programs, such as file-sharing apps like *Kazaa* and *LimeWire*, can leave your computer wide open to attackers, and giving them exceptions from your firewall can be a bad idea.



Enabling exceptions in Windows Firewall will let the programs you use most do their thing, without letting the bad guys through your firewall.

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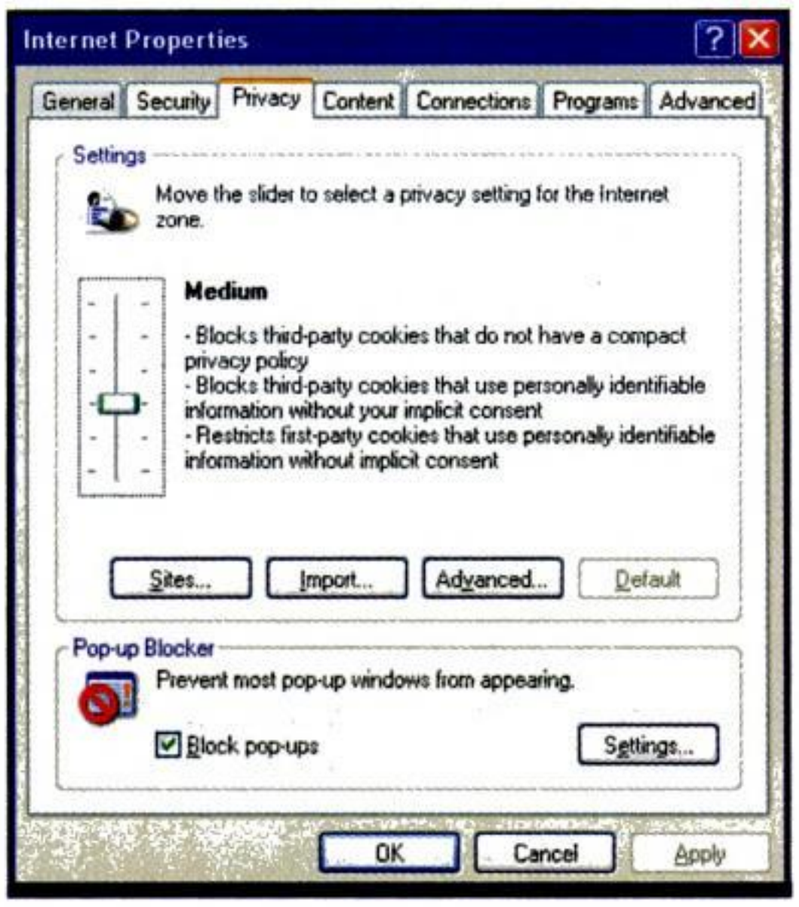
PROTECT YOUR PRIVACY

1 Launch Internet Properties

In the name of convenience, *Internet Explorer* keeps an ongoing log of everything you do on the internet. To avoid these problems, launch your Internet Properties window and click the Privacy tab. The control bar is a handy way to make a quick adjustment to your security settings. At medium, it prevents sites from putting files on your computer, known as cookies, that track your personal information without your knowledge.

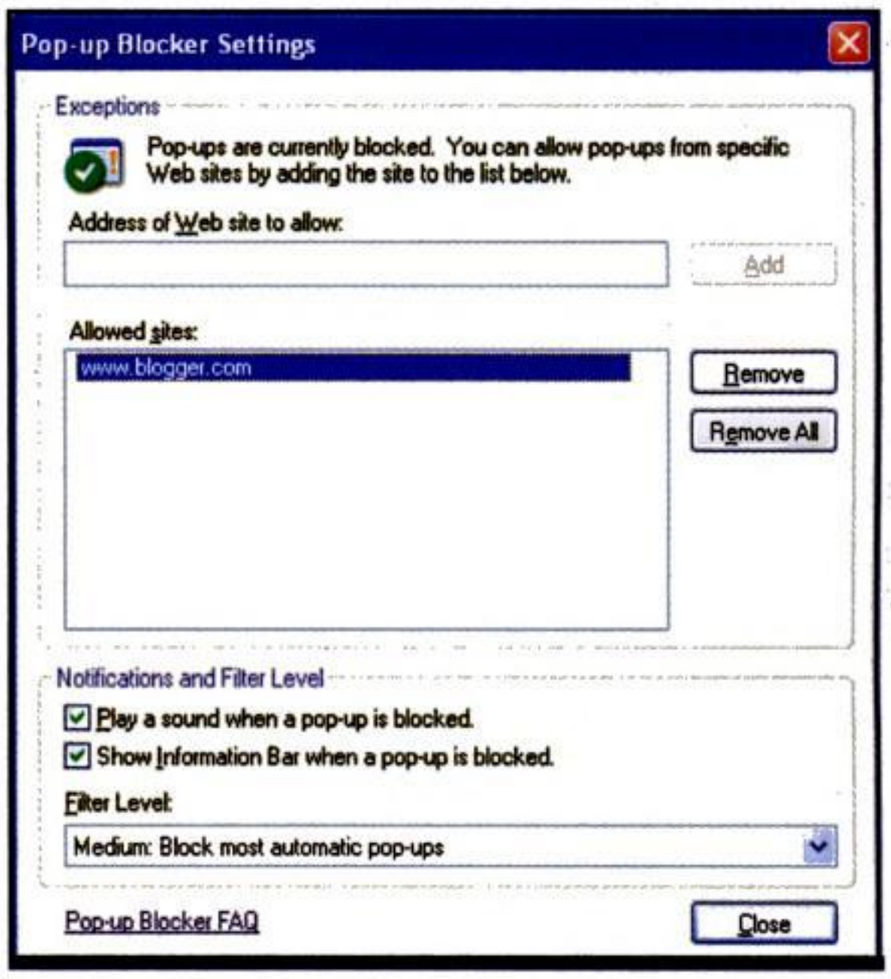
2 Make Allowances

Some sites you visit frequently will require you to keep cookies on your PC, so you'll want to always allow them to do so. Others you'll want to block completely. You can add specific sites to your allowed/blocked lists by clicking the Sites button.



3 Block Pop-ups

Pop-ups are those annoying advertisements that open as new windows, either in front of the window you're browsing in or behind it. Fortunately, Windows XP Service Pack 2 includes a pop-up blocker in *Internet Explorer*. To enable yours, make sure the box labeled "Block pop-ups" is checked.



4 Tune Your Pop-ups

You can fine-tune the settings by clicking the Settings button, which opens a window where you can enter websites you'd like to allow pop-ups on, such as webmail sites. You can also choose to play a sound whenever a pop-up is blocked, but that can be annoying as the pop-ups themselves. Finally, there's a drop-down menu here that lets you choose the level of blocking you'd like to use. Medium is fine for most users.

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MASTER THE COMMAND PROMPT

Here's how to use the most powerful "net tools you never knew you had"

If you thought *Internet Explorer* and *Outlook Express* were the only internet programs in Windows XP, you're missing out. Some of XP's best utilities don't even use your mouse. Tucked away in the Command Prompt—a special interface that lets you type commands directly into Windows—these super tools let you take control of your computer's internet connection when other programs can't. To use these commands, you will need to launch the Windows XP Command Prompt, which you can reach through the Start menu. Select All Programs, Accessories, then Command Prompt. It's the one that looks like a little black box.

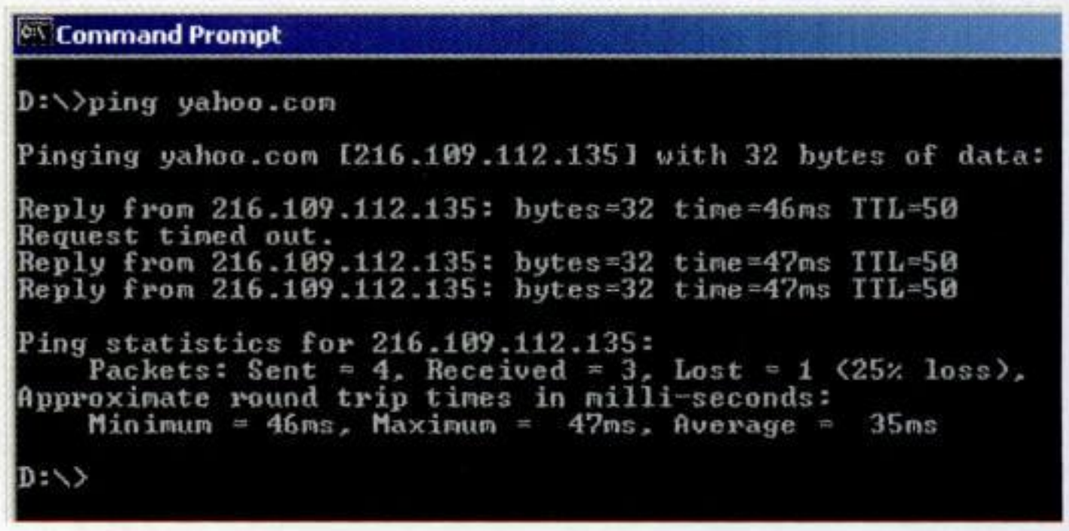
ping

"Ping" is internet speak for "Anybody home?" If you've ever spent time around an avid internet gamer, you have probably heard some discussion of "ping times." Ping helps you measure whether, and how fast, you can reach another computer on the internet. It can help you pick an online gaming server and uncover glitches in your internet connection, which can help you troubleshoot any internet problems before calling tech support.

To use ping, go to the command prompt and type:

```
ping domain.com
```

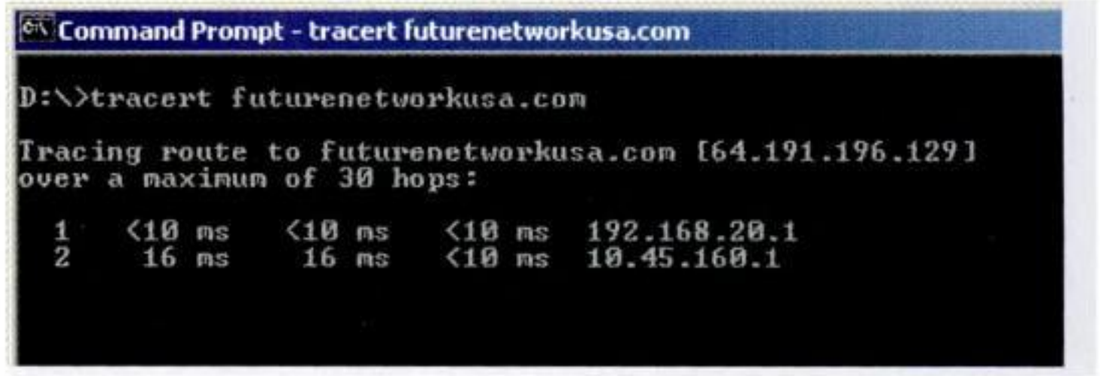
"Domain.com" is the URL you want to test, such as Microsoft.com. If you are going to play an online game, typically the game's website will tell you the name of the server. Under ideal circumstances, the four test messages sent by ping will all bounce back relatively quickly—say, fewer than 100 milliseconds. If some of the pings are not returned ("Request timed out"), there may be a network problem between you and the server. If all of the pings time out, then the server may be down, or you may not be properly connected to the internet. If you are having trouble reaching websites, using ping on a number of popular locations, such as Yahoo.com and Amazon.com, can help you determine if the problem is at your computer or theirs.



Ping can help you diagnose intermittent network problems. In this example, our connection to Yahoo is having trouble.

tracert

Short for "traceroute," this program is a more detailed version of ping. Rather than asking "Are you home?", tracert asks "How do I get there?" It shows you all the computers your traffic travels through to reach your destination, and how long it takes at each step. This is another helpful tool when trying to understand why you may have difficulty reaching some websites but not others. It can also help with detective work, to uncover where an Internet server is located. pathping, another hidden command, is a close cousin to tracert, but it displays more detailed statistics once the trace is complete. Usage: `tracert domain.com`.



Tracert shows each PC your computer touches on the way to an Internet destination.

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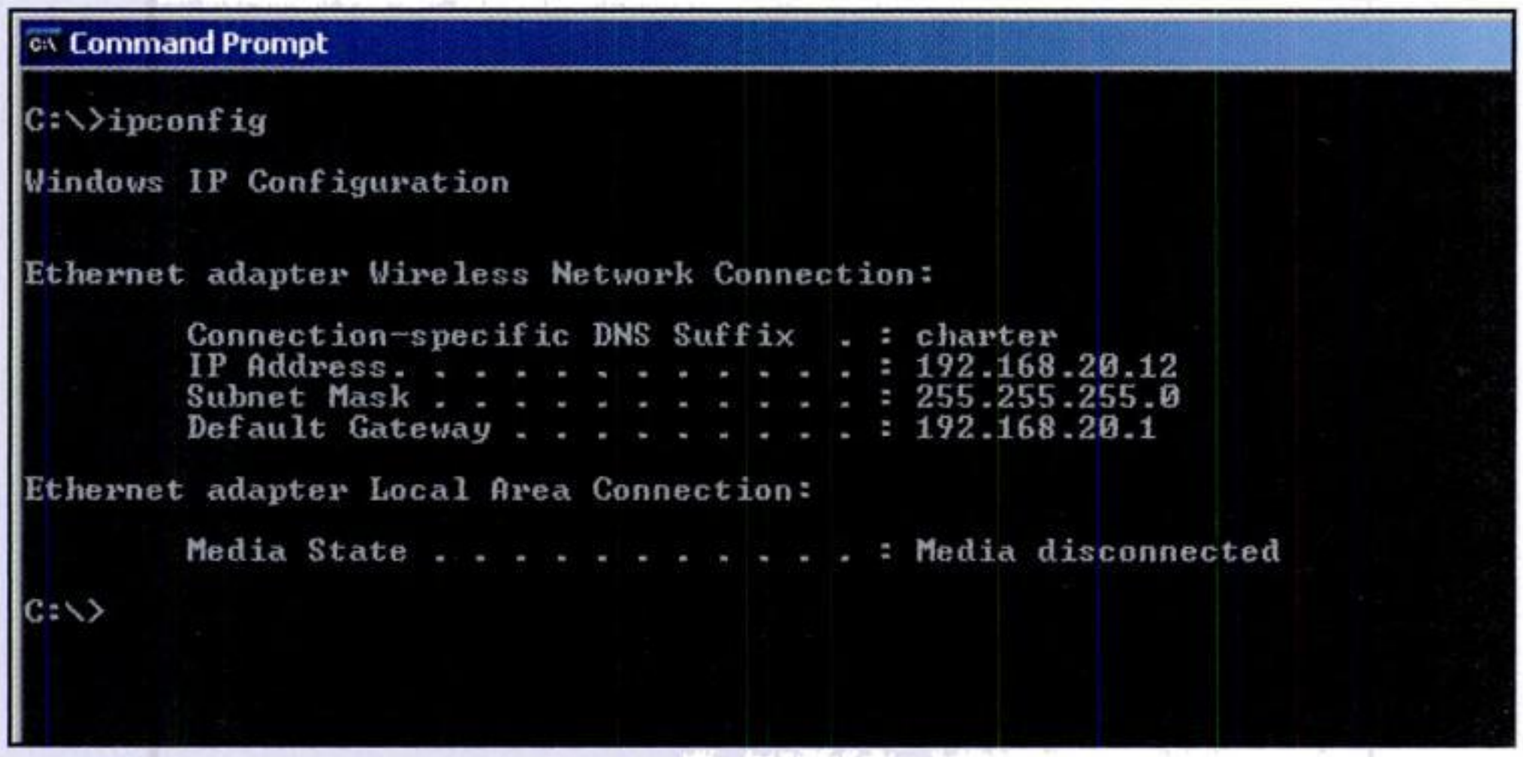
Arcane Commands

There are some other interesting hidden commands that fall into the realm of "you will likely never need this." The *finger* command is the legacy of a bygone era. Once, it would allow you to browse the list of users connected (via telnet) to a server and glance at some details the user had chosen to make public—think of an early version of online diaries. But many servers block finger requests nowadays for privacy and performance reasons. *route* shows detailed information about how your network data is transmitted and lets you make changes—if you are a network administrator. *arp* is a similar low-level networking configuration program. *netsh* provides a world of detailed network control settings that, again, are generally of use only to people running servers.



ipconfig shows Internet connection details and can reset your Internet connection.

ipconfig

Typed by itself at the command prompt, ipconfig shows your local IP address (the numeric code for your computer on the Internet). If you have multiple network connections, such as an Ethernet port and a wireless card, both will appear. If all of your connections show "Media disconnected," then Windows does not believe it is connected to the outside world.

Ipconfig can be used to reset your network connections and clear out any bad assumptions your PC may be making about downed Web sites. Use `ipconfig /flushdns` to tell your PC to forget its past history looking up web addresses.

If you suspect trouble with your broadband connection, this pair of commands will tell your PC to re-establish connection with the central server, which can sometimes shake a problem:

```
ipconfig /release
ipconfig /renew
```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MASTER THE COMMAND PROMPT

ftp

FTP is the oldest and most enduring file-sharing program in the world. High-profile peer-to-peer systems like *Kazaa* and *BitTorrent* may have the spotlight, but FTP has staying power. Many Web hosts support FTP, and a number of graphical programs, including Windows Explorer, can open FTP connections. But for the ultimate in simplicity, you can use a command-line version as well.

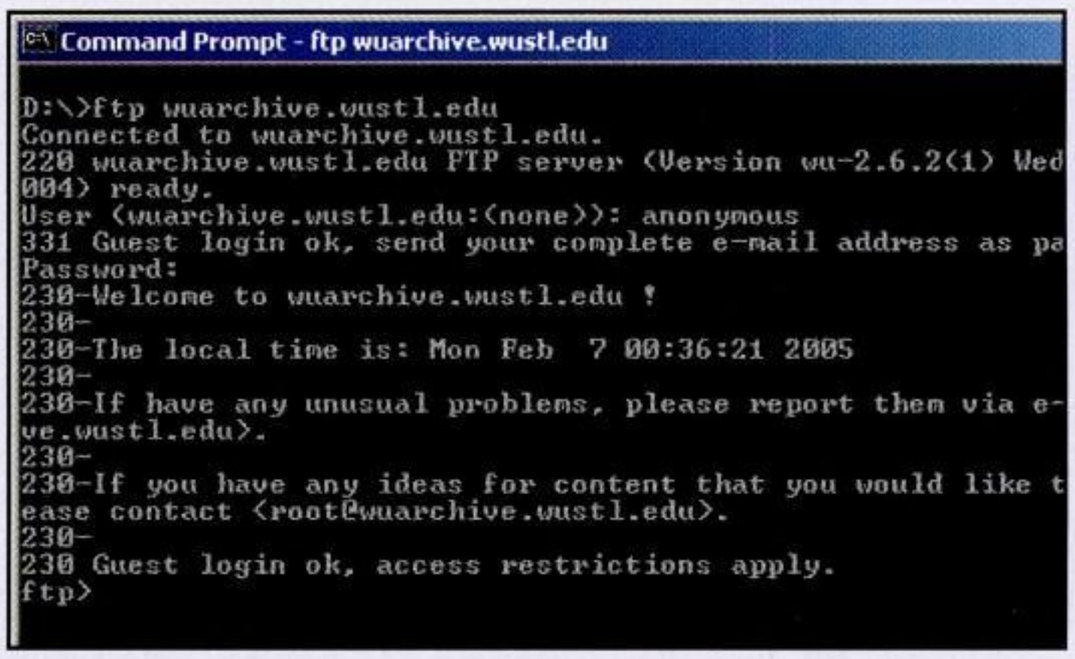
To use FTP, just type:

```
ftp domain.com
```

If you have an account at the site, enter the username and password when prompted. Many FTP sites are "anonymous FTP," meaning you can access their files without special permission. Just type "anonymous" as the username and type your e-mail address (it's considered polite to leave your calling card) as the password.

When connected via FTP, you need to know at least a few of its special commands to upload and download files.

ls — Obtain a list of the current directory's files
cd — Change directory to a new location (this command also exists in Windows)



FTP is a classic way to move files around online.

get — Download a file from the FTP server to your computer
put — Upload a file from your computer to the FTP server

tftp is also available in Windows. It is a specialized, completely non-secured version of the FTP program. Under normal circumstances you will never need to use it. rcp is another specialized file-transfer program that rarely comes up in everyday PC life.

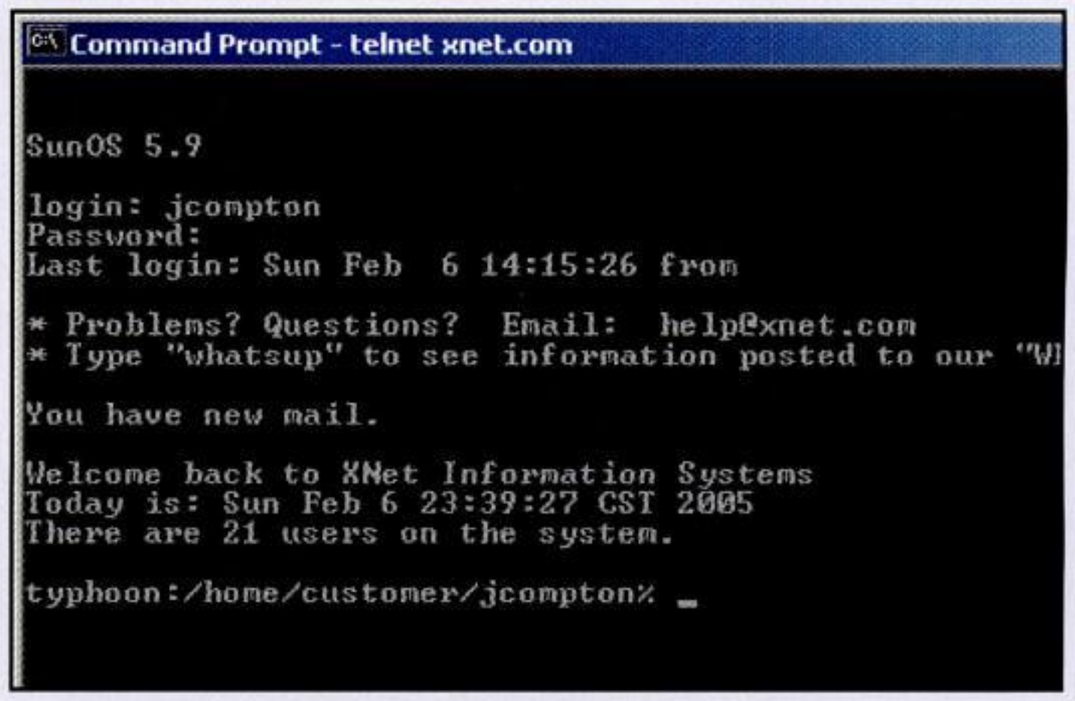
telnet

Telnet was once the most popular way to exchange information and play games online, before the Web browser, higher-speed connections and more powerful computers brought graphical forums and 3D deathmatches. Telnet allows you to open a text-based connection to any machine set to listen for visitors. Because text is much more efficient than graphics, telnet can still be used as a fast, efficient way to obtain information online.

Telnet is still used in a number of network administration tasks, and many colleges still issue telnet-accessible accounts to students. If your ISP or web-hosting service says it offers "shell access," it means you can contact their servers via telnet to check your e-mail, access newsgroups, and even run text-based Web browsers. Thousands of people still play telnet massively multiplayer online games, also known as Multi-User Dungeons, the precursors to multiplayer online games such as *EverQuest* and *Asheron's Call*. To open a telnet connection, just go to the command prompt and type:

```
telnet domain.com
```

If you see an indication such as "port 2000" or "domain.com:2000," it means that the network traffic for the telnet is carried on a different port, or channel, than the default. In that case, just add the number to the end of the command after a space, such as



Reach your ISP from anywhere, or kick back and watch a "movie"... after a fashion... with telnet.

```
telnet domain.com 2000
```

Some Telnet sites to try:
towel.blinkenlights.nl (*Star Wars* with text graphics)
aahmud.homelinux.net 4500 (the Abandon All Hope MUD)
www.mudconnect.com (a list of all known MUDs)

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MASTER THE COMMAND PROMPT

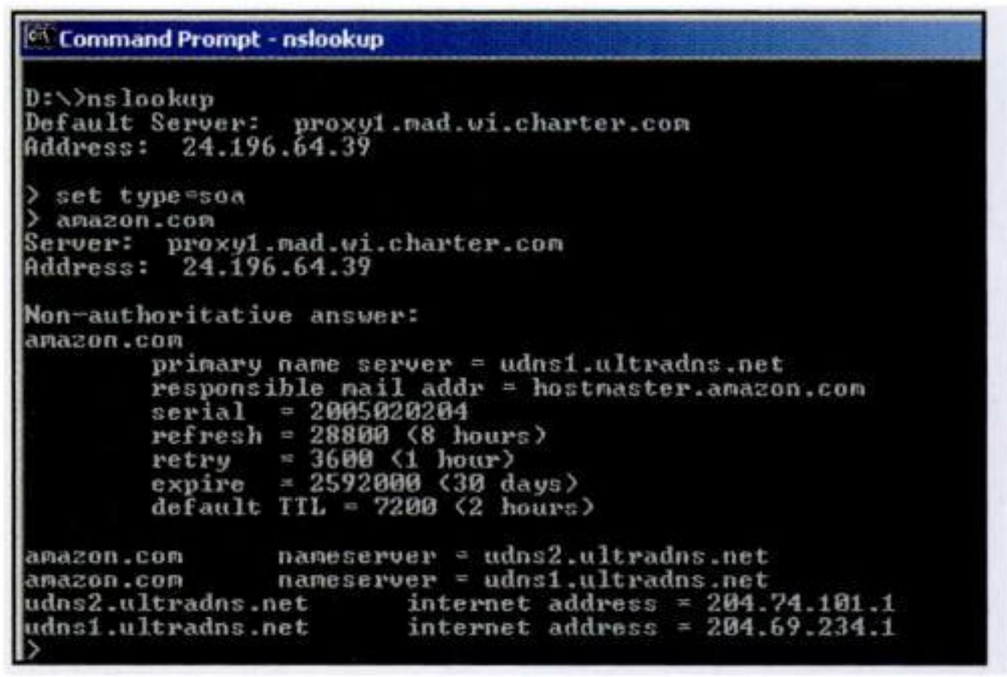
nslookup

With nslookup, you ask your ISP's domain-name servers to tell you the Internet address for any Web site. Why? For one thing, accessing sites by number instead of name can be slightly faster. Having the IP numbers of some major Web sites on hand can be helpful for pinging purposes—sometimes, your ISP's domain-name servers may go down, preventing you from being able to look up sites by name, but you may still be able to ping and access them by numbers. (Tech-support people are generally very impressed if you can troubleshoot a network connection problem this well, and it can make those frustrating calls go faster..)

To use nslookup, just type:

```
nslookup domain.com
```

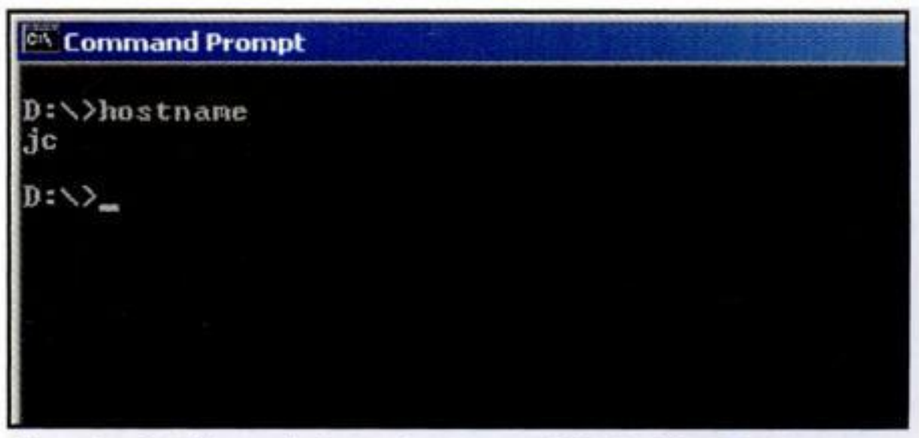
...at the command prompt. If you want to look up a slew of names, just enter nslookup and then type in as many domain names as you want. For extra information, type `set type=soa` before you enter a domain name. This shows additional data, including the e-mail address of the "responsible person" in charge of the site. Contact them if you have a lot of difficulty accessing the site.



Use nslookup to obtain the numerical Internet address for Web sites, and to hunt for more details on the sites you visit.

hostname

Typed all by itself on the command prompt, hostname will spit out the network name of your computer. This is mostly used for setting up Windows networking, ensuring that another computer on the network can see your PC by name.



Simple, to the point, and saves a trip to the System control panel.

net view

Like hostname, except net view shows the name of all the machines you can see on your Windows network.

On a large network, net view gives you a long list of servers. Here, we have only a few machines.

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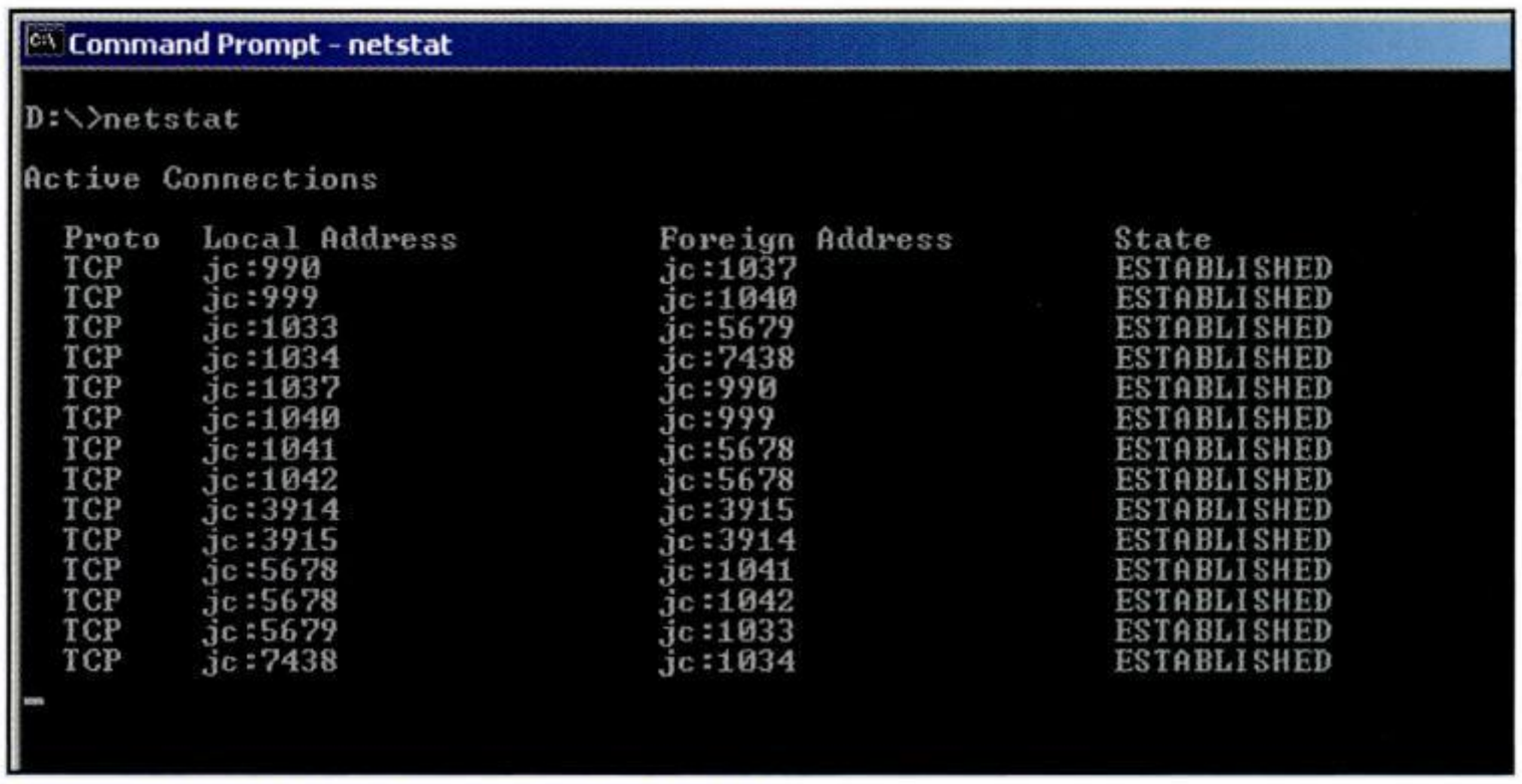

See your active internet connections in netstat.

netstat

Netstat shows all of the network traffic in and out of your PC over a short period of time. Don't be surprised if it's a long list even when you only have a couple of browser windows open. You might use it if you suspect a spyware program of reporting personal data to another server. Security warnings about specific programs will often tell you the address and port number the rogue traffic would use.

if you have mapped a network drive to your PC, it will appear in net use.

net use

Net use shows all of the Windows network partitions you have assigned to drive letters on your local PC, where they live on the network, and whether they are currently available.

Don't worry about "breaking" anything with these hidden commands. They are all well-tested and, behind the scenes at least, many are still an important way that computers network. Put them to work for you and expand your horizons beyond the browser! MPC

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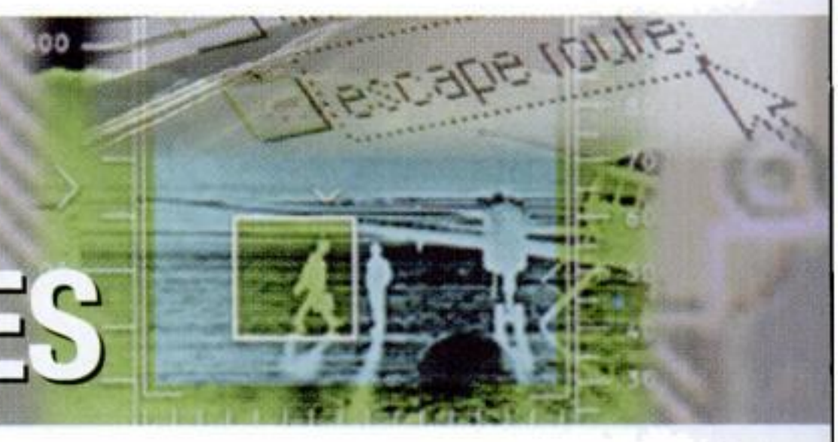
Protect Your Data FROM DIGITAL THIEVES

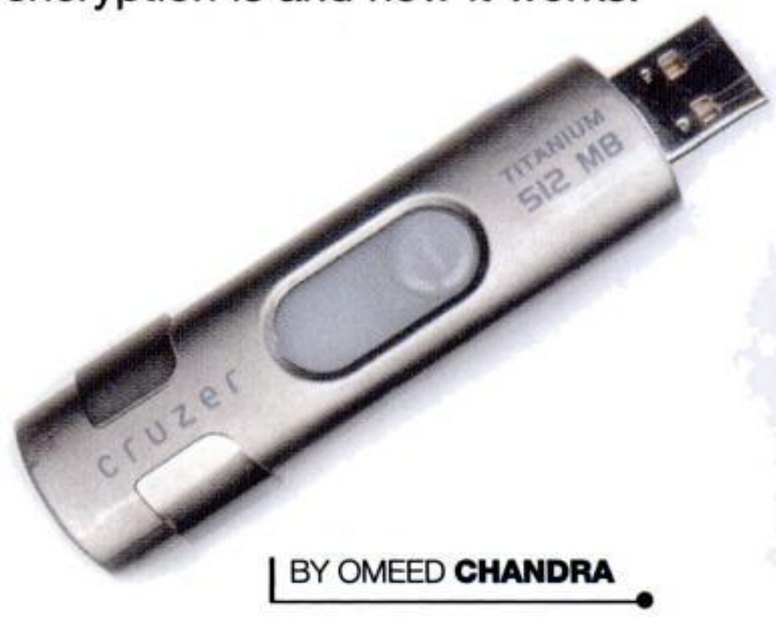


Use encryption technology to keep your private data out of the public domain

TIME 00:46 HOURS:MINUTES

Firewalls and antivirus programs are just dandy for protecting your PC itself, but what about the stuff that's *on* your PC? The thousands of MP3s you've amassed over the years; your income-tax returns dating back to the Reagan presidency; your infallible proposal for achieving peace in the Middle East—we're talking about your data, chief. Those precious bits and bytes might be safe enough on your hard drive, but they're dangerously exposed the moment they leave the shelter of your home. Send an e-mail, and it might pass through dozens of other computers on the Internet, where it could be easily intercepted and read before reaching its intended recipient. Indulge in the convenience of carrying your most important data in your pocket on a USB flash drive or a portable hard disk, and you'll be in a world of hurt if that pocket drive is lost or stolen.

Digital thieves are everywhere, so we'll show you some easy ways—using free and low-cost tools—to defend the data stored on your pocket drives. We'll show you how you can ensure the privacy of your e-mail, too. And for the uninitiated, we'll explain the basics of what encryption is and how it works.



BY OMEED **CHANDRA**

WHAT IS THIS "ENCRYPTION" YOU SPEAK OF?

You probably use encryption all the time, whether you realize it or not. Encryption is what keeps shady characters from seeing your password when you log onto Hotmail, or from stealing your credit-card number while you are shopping online. And in a much more potent form, it's what the government uses to keep enemies of the state from getting their hands on top-secret NSA communiqués.

Encryption is fundamentally about obscuring data, using a special code called a key. Here's a simple example: Say your best friend wants to know how much you ***really*** paid for your engagement ring. Suspecting that your girlfriend is monitoring your Internet connection, you e-mail your buddy saying the ring cost $8,000. Next, you call him on the telephone and inform him that you encoded the message by multiplying the true price by 800. Your friend then divides 8,000 by 800 to learn that the ring cost a mere $10; your girlfriend will be none the wiser. (Note: ***Maximum PC*** does not advocate buying your fiancée a $10 engagement ring, and we accept no responsibility for the consequences of such unwise actions.)

Real-world encryption procedures are much more complicated, of course, but the concept is basically the same. They differ mainly in terms of the number and types of keys used to scramble and unscramble data, as well as how those keys are

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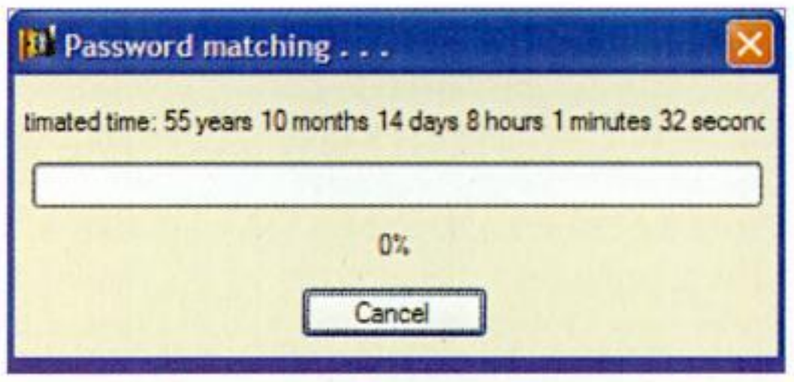
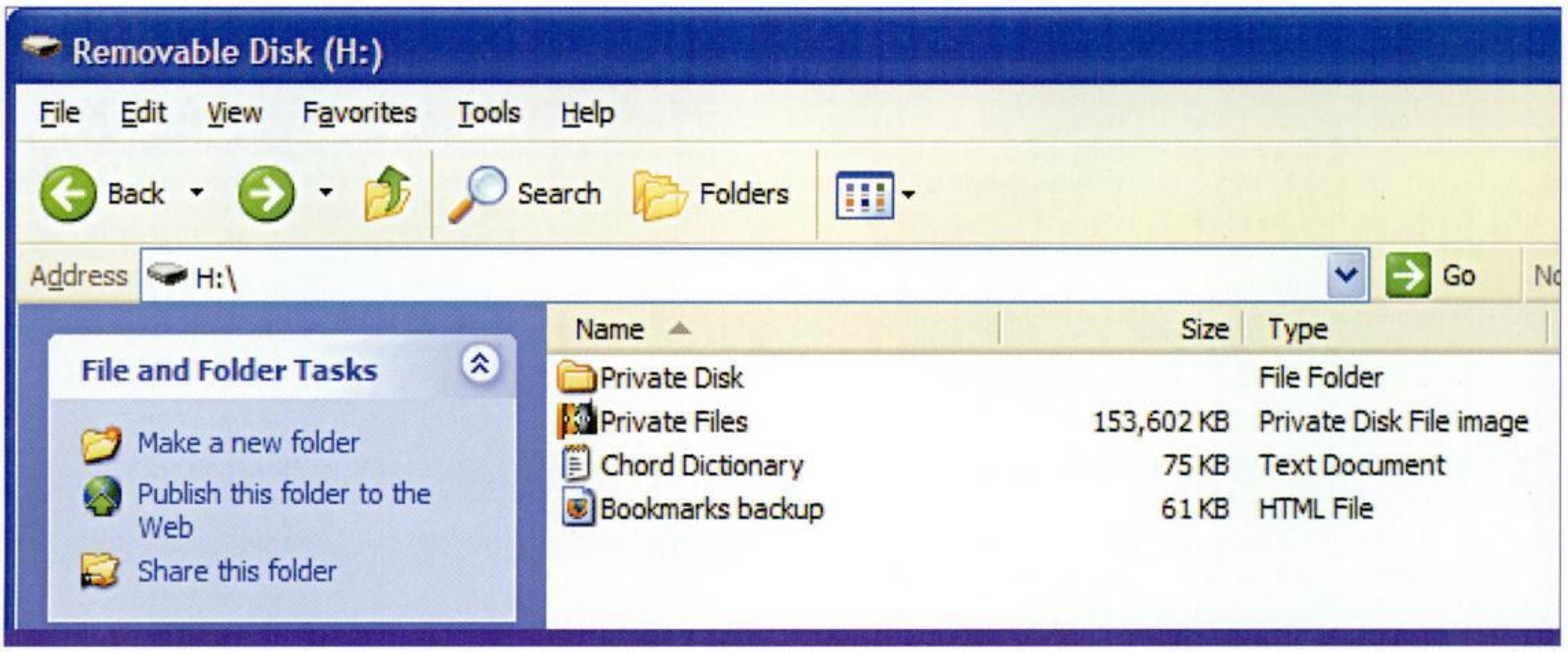
STEP 1: OBTAIN PRIVATE DISK

We tested several tools capable of encrypting the contents of a pocket drive. We wanted a secure, user-friendly program that could be run from the encrypted drive itself, so we wouldn't have to install it on every computer we take our files to. Our top choices were *Lockngo Professional* ($40, **www.keynesis.com**) and *Private Disk* ($45, **www.dekart.com**). Both apps consume a negligible amount of disk space, and each boasts 256-bit AES encryption for the entire contents of a drive (many utilities encrypt only the file system and not the data, leaving the latter vulnerable to cracking).

Although *Lockngo Professional* is easier to set up and use than *Private Disk*, we prefer the latter for several reasons. First, *Lockngo* won't let you leave a portion of your pocket drive unencrypted for storing unclassified data—it's all or nothing. Second, you can use the same copy of *Private Disk* on as many pocket drives as you wish, whereas you must purchase a separate copy of *Lockngo Professional* for each pocket drive you own. *Private Disk* can even be used to encrypt files on your computer's hard drive. And finally, unlike *Lockngo*, *Private Disk* encrypts data on the fly as you copy it to your pocket drive, making it considerably faster. Read on to learn how to set up *Private Disk* on a pocket drive.



If you forget the password to your encrypted files, *Private Disk* can try to guess it using a brute-force attack. If you've chosen a good password, however, the guessing process could take years.



Unlike some of its competitors, Dekart's *Private Disk* allows you to leave part of your pocket drive unencrypted. This means you can protect your vital data, but still have easy access to less critical files.

computed. Good encryption algorithms generally use very large numbers (indicated by the bit strength, e.g., 128-bit) and complex formulas. In order to decrypt something, you'll need to either know or be able to compute the proper key. Assuming the key-generating algorithm is too complex to decipher, the only way a hacker can decrypt your data is by guessing the right key. That's why higher bit strength translates into better security—a 256-bit binary key (where the value of each bit can be either 0 or 1) has a whopping 2^{256} possible values! Few (if any) criminals will bother with the exorbitant amount of time needed to try out that many keys—they'll just move on to an easier target.

OK, that's simple enough: the more bits, the better. But how can you tell whether a particular encryption utility uses a secure algorithm? As a rule of thumb, opt for utilities that employ one of the widely used encryption algorithms that cryptography experts have deemed secure. There are too many to mention here, but some of the most popular include AES (Advanced Encryption Standard), RC4, Blowfish, and 3DES (Third Generation Data Encryption Standard). We'll stick with AES for this how-to; AES has yet to be cracked as of this writing.

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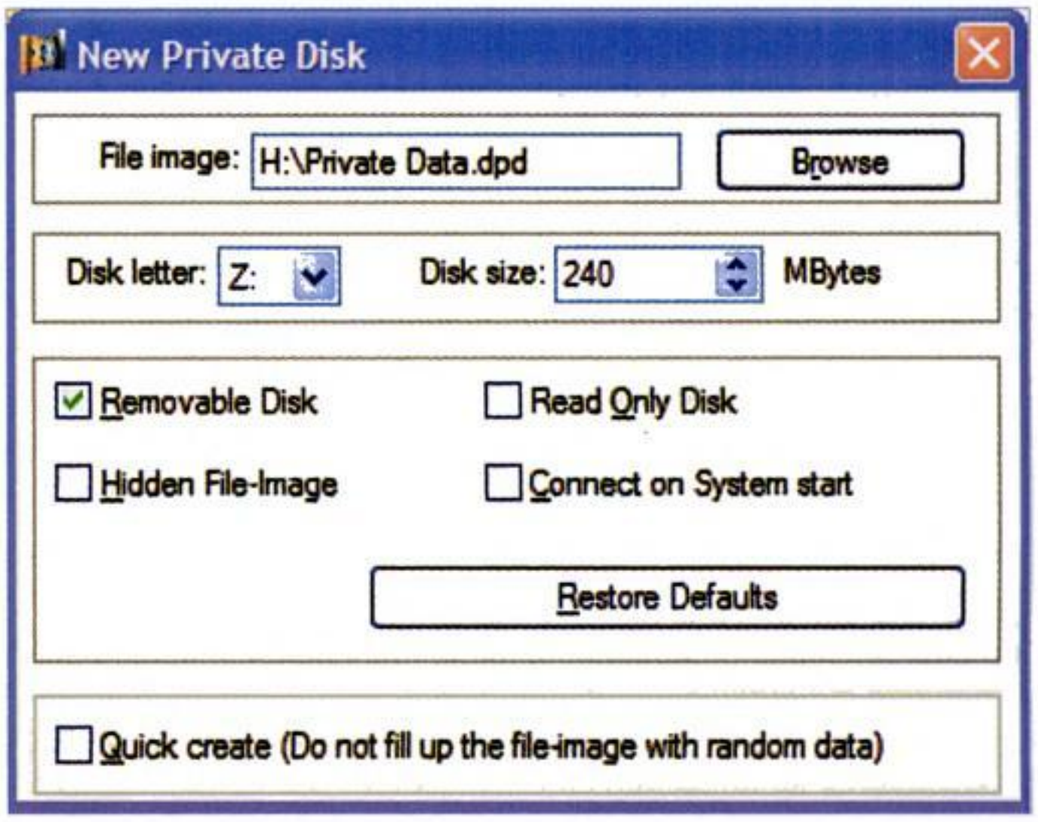
2 STEP 2: INSTALL PRIVATE DISK AND CREATE AN IMAGE FILE

The first thing you'll need to do is download and install ***Private Disk*** on your computer (every Windows OS since Windows 95 is supported). When you run the program for the first time, we recommend heading over to the Options tab and unchecking "Closing the window will minimize the program to System taskbar" and "Display icon on System taskbar." Then, return to the Disk tab and click the Create button. If you haven't connected your pocket drive to your computer yet, do so now, and then click the Browse button and navigate to your pocket drive. The encrypted data on your pocket drive will be represented by a .dpd file in Windows Explorer. Enter a name for this file and click Save.

You should now be back in the New Private Disk window. Feel free to experiment with the various options here later on; for now, let's just deal with the "Disk size" field. You can encrypt as little or as much of your pocket drive as you wish—just be sure to reserve about 2MB of unencrypted free space for storing the ***Private Disk*** program files. For instance, to encrypt a 256MB USB flash drive (which had an actual capacity of 242MB, according to Windows XP), we specified a 240MB image size.

At this point, click the Create button and choose a password for your encrypted data. The usual common-sense advice applies here: Use a long password that isn't something ridiculously obvious (e.g., your name) and that incorporates a combination of upper- and lower-case letters, numbers, and symbols. You can even use an easy-to-remember sentence. Make sure it's something you won't forget, though—if you do forget it, your encrypted files are as good as gone. Lastly, format the new virtual drive when prompted, using whatever settings you desire.

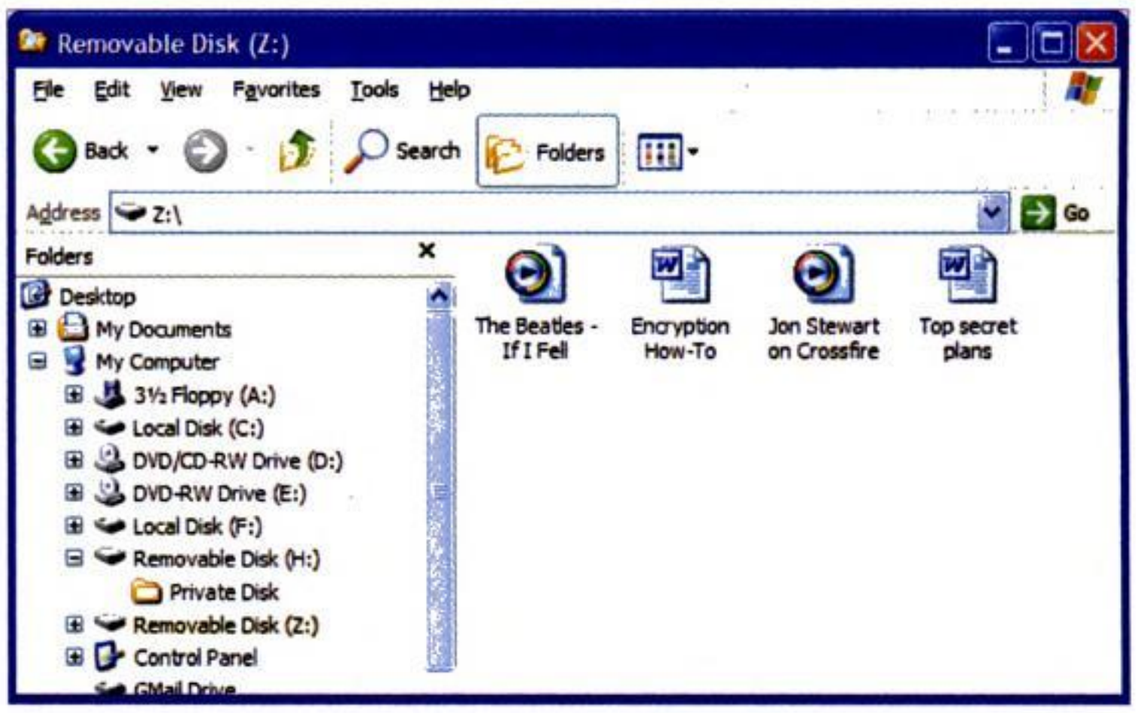


We chose to save our encrypted disk image to a USB flash drive, but you can also create an encrypted image file on your PC's hard drive and use it to protect important files stored there. This can be useful if, say, your hard drive gets stolen or you have snoopy co-workers or family members.

3 STEP 3: ADD A PINCH OF DATA AND A DASH OF SELF-SUFFICIENCY

You'll need to mount your encrypted image file before you can access and modify the data inside it. *Private Disk* does this automatically when you first create the image, but the next time you need to access your data, you'll need to start *Private Disk*, click the Connect button, and locate the image file you wish to mount—or just double-click the image file. Enter your password, and your encrypted data will appear as a virtual drive in Windows Explorer, where it can be read from and written to just like any other drive. Any data you add to this virtual drive is automatically encrypted. When you're done accessing your encrypted data (and before you unplug your pocket drive), dismount the virtual drive either by exiting *Private Disk* or by clicking the Disconnect button in the program's main window.

Toting files around on a pocket drive isn't very convenient if you can't access them on computers that don't have *Private Disk* installed. However, it's easy to take *Private Disk* with you. First, copy the entire *Private Disk* folder from your hard drive onto your pocket drive (the default folder is C:\Program Files\Dekart\Private Disk). Next, open the Start menu, choose Run, type "%SystemRoot%\system32" and click OK. Locate versnum.dll and dkar.dll and copy these two files to the *Private Disk* folder on your pocket drive. Finally, edit prvdisk.ini (found in the *Private Disk* folder) and add the following line at the end: SerialNumber =xxxxx (where xxxxx is the serial number you obtained upon purchasing *Private Disk*).



Once you mount an encrypted .dpd file using Private Disk, its contents will appear as a virtual disk drive in Windows Explorer, where it can be read from and written to.

Your encrypted pocket drive is now entirely self-sufficient. To access your files on someone else's computer, simply run the PrvDisk.exe executable from your pocket drive and mount your encrypted image file.

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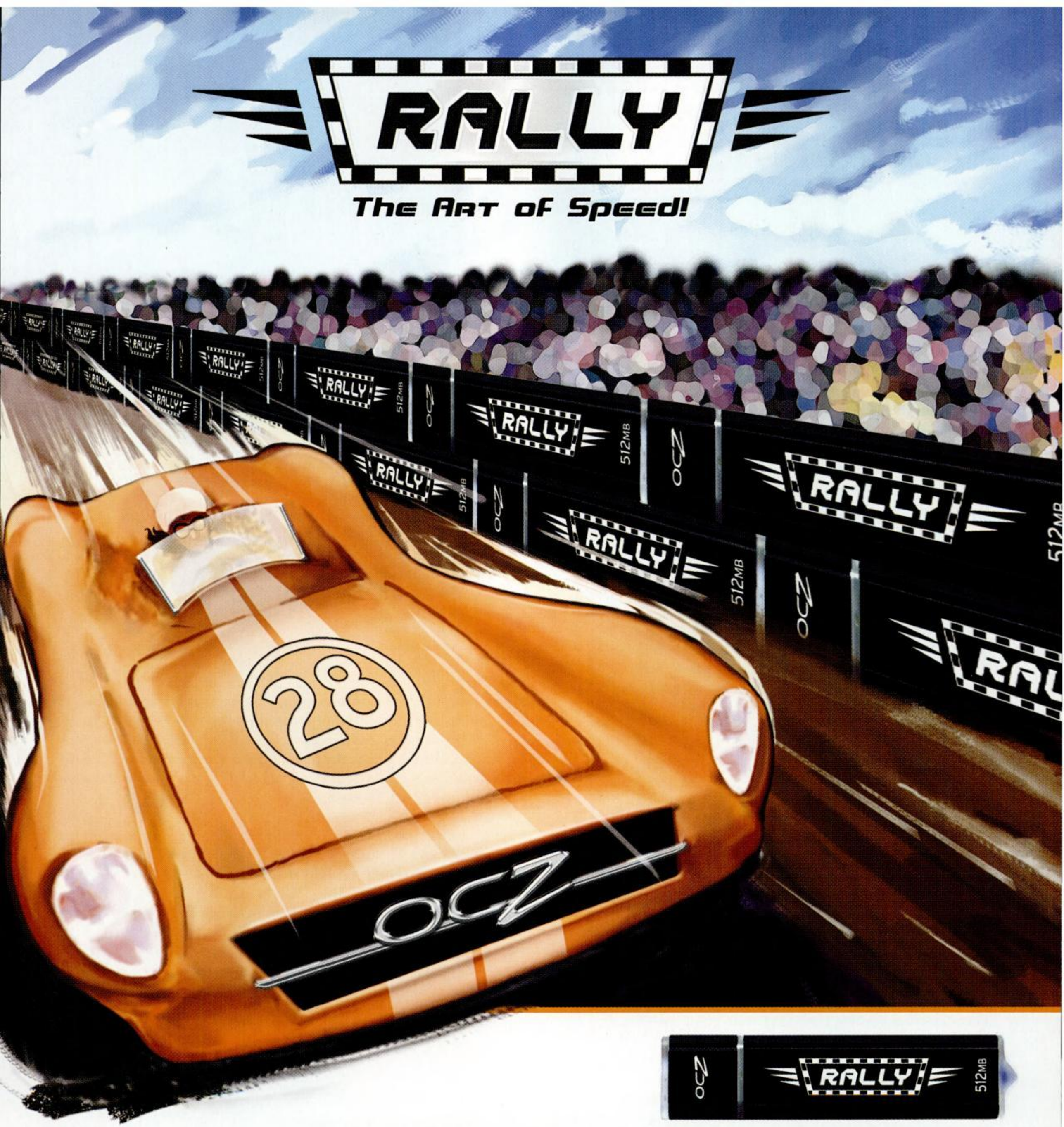

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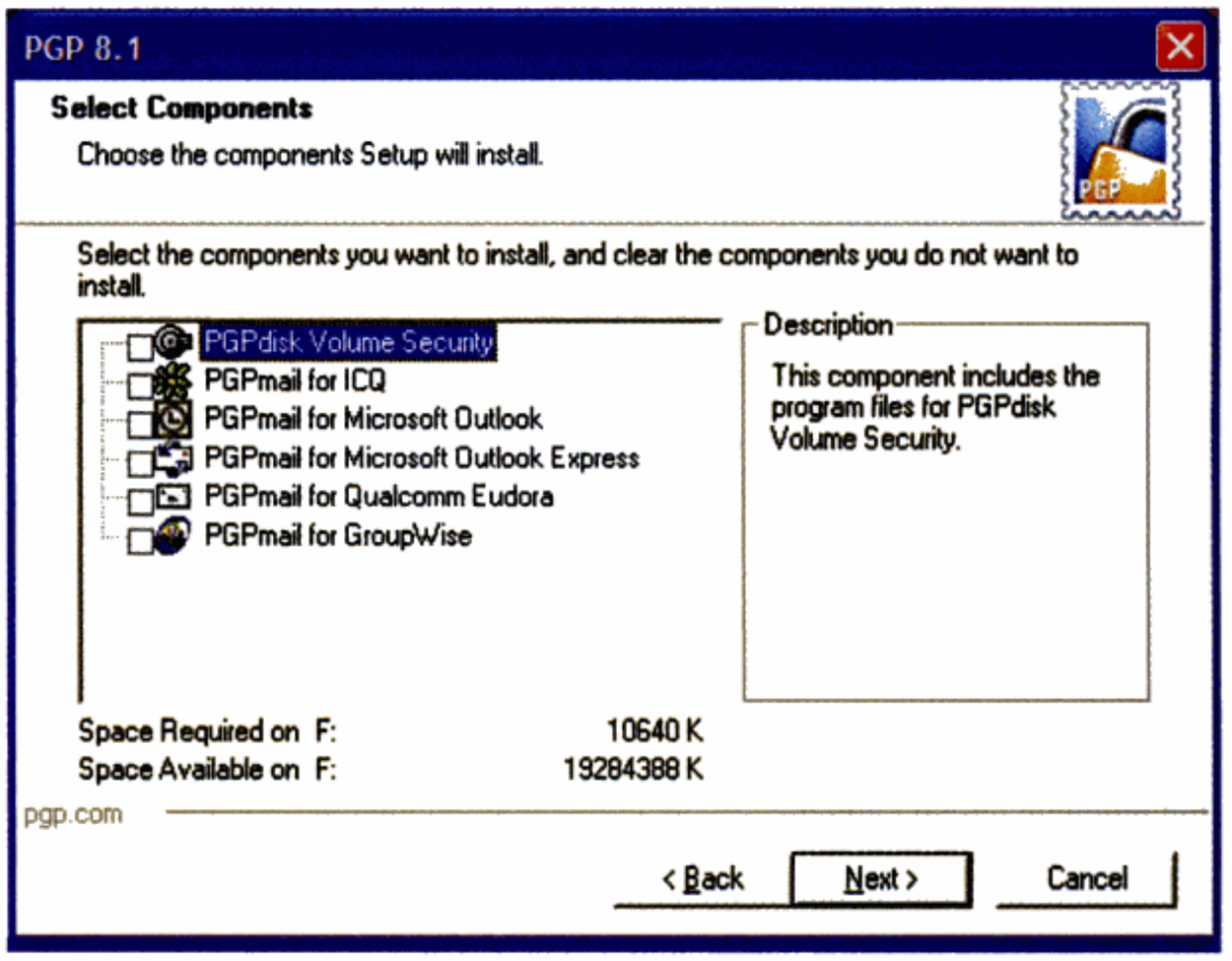
Send E-mails SECURELY AND CONFIDENTIALLY

1 STEP 1: WHAT IS PRETTY GOOD PRIVACY?

Regular e-mail is perfectly fine for casual communications, but what if you need to send a private e-mail regarding an important matter? The solution is a tool called *PGP* (**www.pgp.com**), which is an acronym for "Pretty Good Privacy." *PGP* utilizes shared-key encryption, which means it uses two kinds of keys: public and private. You first generate public and private keys for yourself; and then you and your contacts add each others' public keys to your respective "key rings." Using these public and private keys, *PGP* encrypts and decrypts e-mails sent between you and the people on your key ring, thus ensuring that the sender and recipient are who they claim to be.

PGP has been around for many years and is the most popular method of e-mail encryption in use today. It exists in several flavors, including a freeware version for noncommercial use. To get started, download and install the latest release, minus all the optional plug-ins and features (none of which are free). When the installer asks if you already have keys you'd like to use, select "No, I'm a New User."

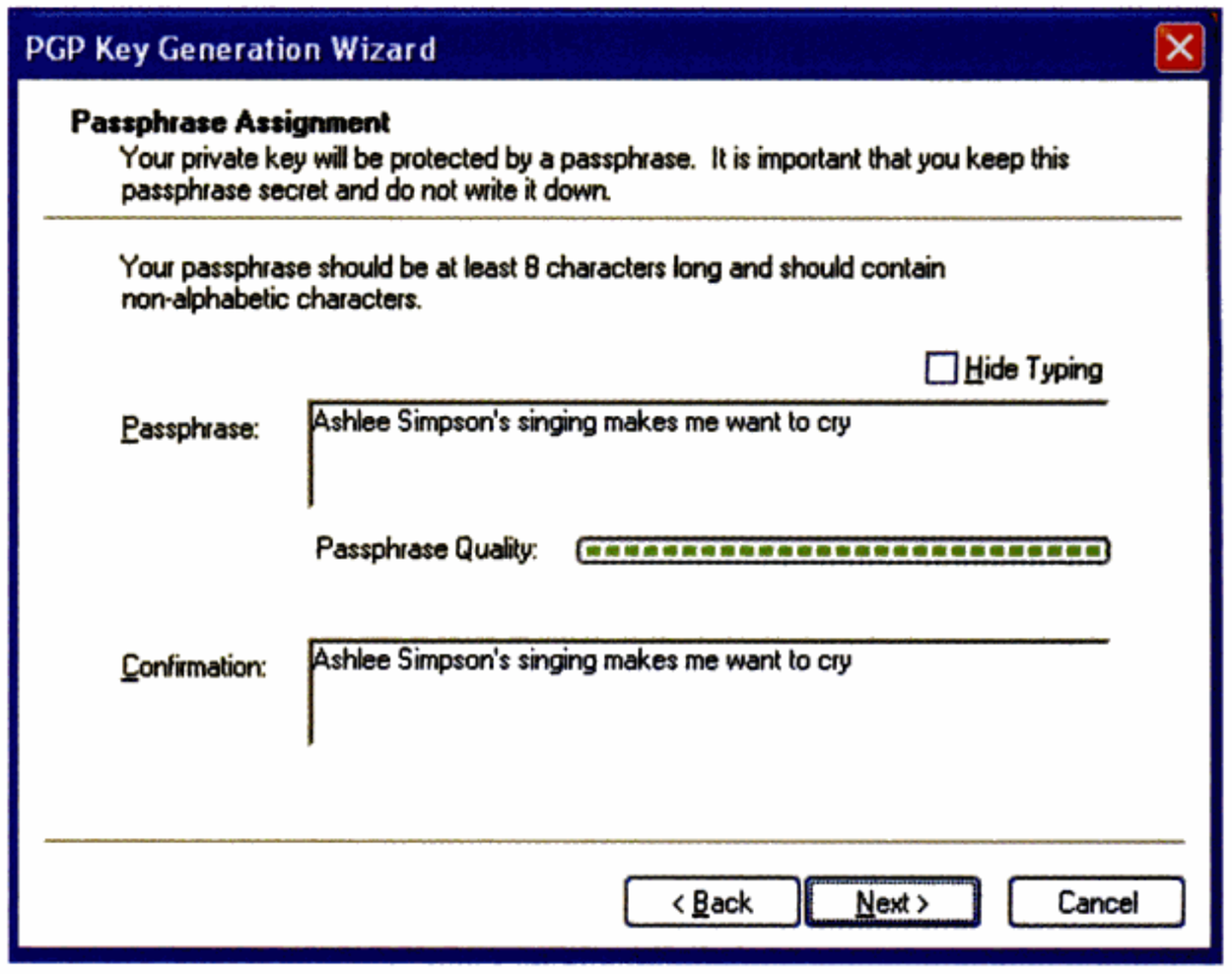


Shell out $60 for *PGP Personal Desktop* and you'll get *PGPdisk* (for encrypting files on your hard drive), as well as convenient plug-ins for ICQ and several popular e-mail clients. If you want to use the freeware version of *PGP* instead, uncheck all these optional components during installation.

2 STEP 2: CREATE YOUR PGP KEYS

The first time you reboot your computer after installing *PGP*, the License Authorization window will appear. Click the Later button to make it go away, and then look for the *PGP* padlock icon in the notification area of your taskbar (at the bottom-right of your screen). Right-click the padlock and choose PGPkeys to open the PGPkeys window. From the Keys menu, open the Key Generation Wizard by clicking New Key. Click Next, enter your name and e-mail address, and click Next again. This will bring you to the most critical part of the key-generation process—choosing a pass-phrase. Your pass-phrase should be long and complex, ideally encompassing a combination of spaces, symbols, numbers, and letters. When you're done, click Next, Next again, and then Finish.

Note that *PGP* offers a multitude of different encryption methods and strengths to choose from. These settings can be accessed by clicking the Expert button on the first screen of the Key Generation Wizard, but because the default encryption method (256-bit AES) is well-suited to our purposes, we won't mess with it.



Your pass-phrase is the weakest link in the security of *PGP*, so it's imperative to pick one that's difficult to figure out, but that you'll still be able to remember. To assist in this process, *PGP* rates the quality of your pass-phrase as you type it in.

Continued on next page→

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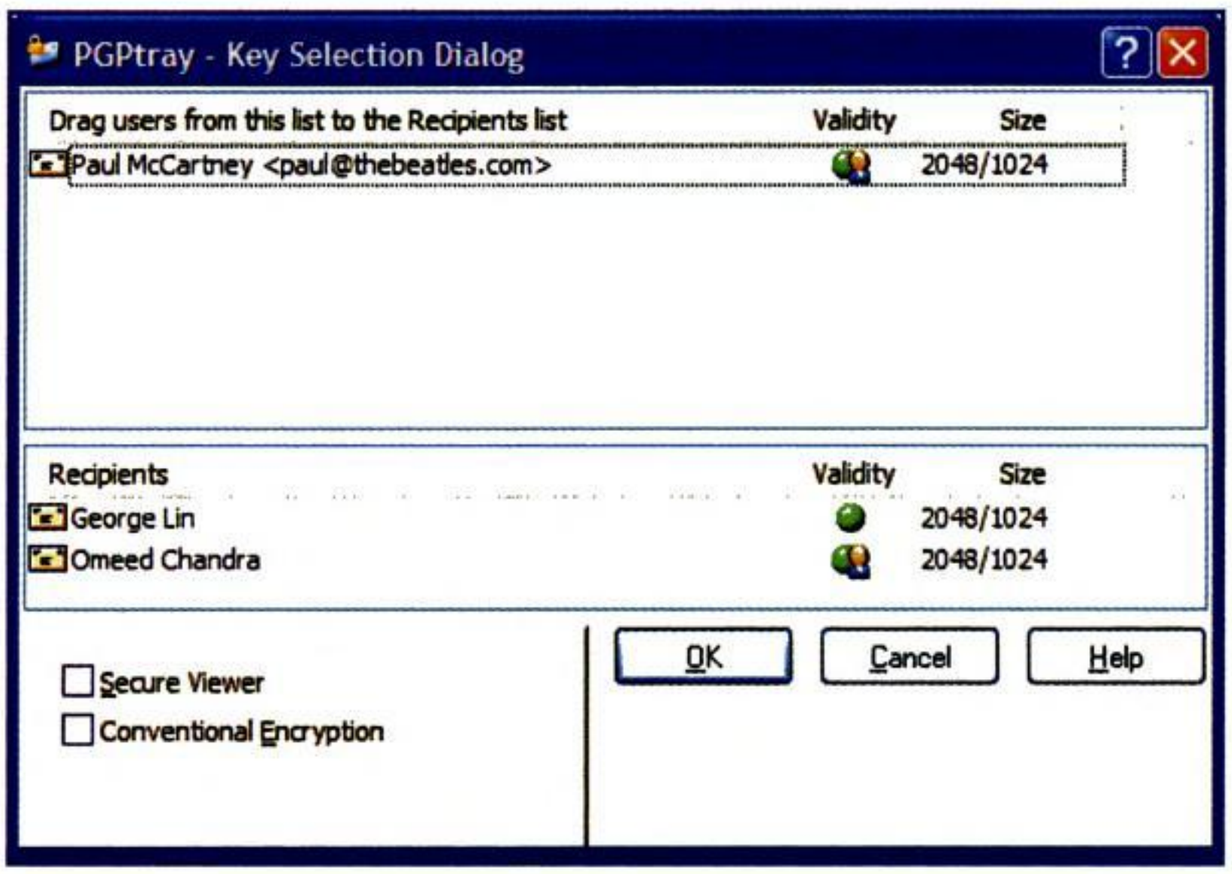
3 STEP 3: EXCHANGE KEYS AND E-MAILS WITH OTHER PGP USERS

In order to send and receive secure e-mails among other *PGP* users, you must first exchange keys with them. To do this, open the PGPkeys window by right-clicking the *PGP* padlock icon in the notification area and clicking PGPkeys. Select your name from the list of keys displayed, click Edit, and then choose Copy to send your public key to the clipboard. Now fire up your favorite e-mail client, create a blank message, and paste your public key into the message window. Sending this e-mail to fellow *PGP* users will allow them to add your public key to their key ring.

You'll also need to add your contacts' keys to your own key ring. Have them send you an e-mail with their public key using the procedure just described. When you receive the e-mail, open it in its own message window (to do this in Microsoft *Outlook*, go to your Inbox and double-click the desired message). Next, right-click the *PGP* icon in the notification area, choose Current Window, and then click Decrypt & Verify. *PGP* will look at the encrypted text in the window, and present you with several options. If the message sender isn't already on your key ring, you will be prompted to add him or her. (You might need to manually sign the sender's key to verify its authenticity. To do this, right-click the person's name in the PGPkeys window, click Sign, and then click OK.) Subsequently, right-click the person's name again, choose Key Properties, and move the Trust Model slider to Trusted and click Close.

After that, it's easy to exchange encrypted messages with other *PGP* users. To send an encrypted e-mail, type the e-mail using your favorite client, then (with the message window selected) right-click the *PGP* icon in the notification area, choose Current Window, and click Encrypt & Sign. When prompted, select the intended recipients of the message from your key-ring and click OK. You can now send the e-mail as you normally would. To read an encrypted e-mail sent by one of your contacts, open the message in its own window, right-click the *PGP* icon, choose Current Window, and then click Decrypt & Verify. *PGP* will verify that the sender is indeed who he or she claims to be, and then decrypt the e-mail so you can read it. MPC



When sending an encrypted message using PGP, you'll be prompted to specify who is allowed to read the message by dragging people from your key ring to the Recipients list. If you forget to add the intended recipient(s) of an e-mail to this list, they won't be able to read it.

Ask the Doctor

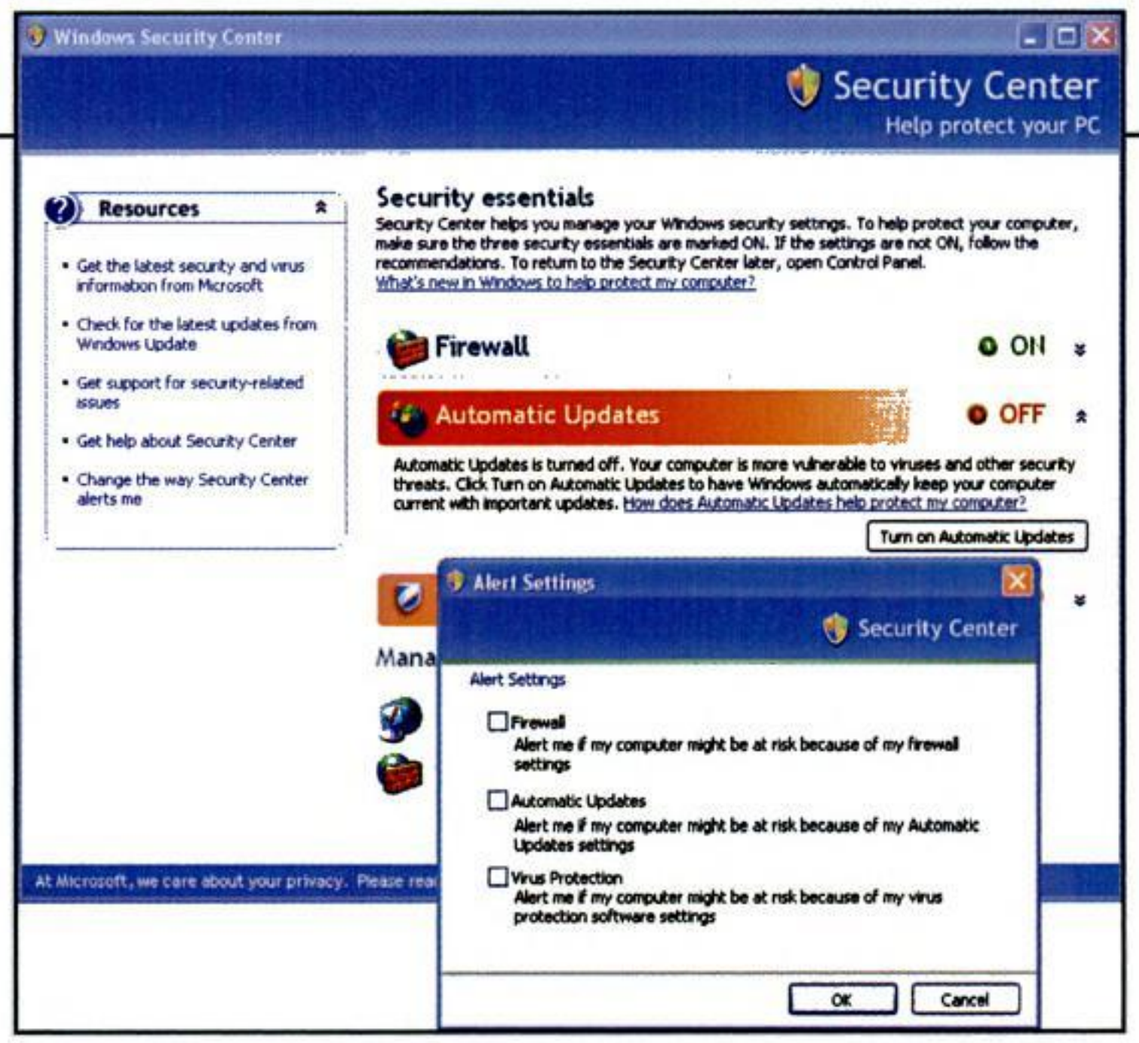
ENOUGH ALREADY!

Is there any way to disable the nagging little Windows security bubble that pops up every time I disable the Windows firewall or turn off my anti-virus program? The executable name is "wscntfy.exe."

— Bill Price

This is the Windows Security Notification, which is part of Windows XP SP2. It will nag you whenever you shut down your firewall or antivirus software, and it will also bug you if Windows doesn't happen to recognize whatever security software you are using. Fortunately, there's an easy way to get rid of it.

Double-click the Windows Security Alerts icon in the Taskbar to open the Windows Security Center. Click the menu item that reads "Change the way Security Center alerts me," in the left-hand menu. When the dialog box opens, remove the checkmarks next to firewall and virus protection. If you don't want to be pestered about automatic updates, remove the checkmark next to this item, too. If you turn off all three alerts, the icon will disappear from the Taskbar. If you decide to turn any of them back on, you'll need to access the Windows Security Center from the Control Panel.



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Make Your Loud PC Whisper-Quiet

Silent-but-deadly can be a good thing. Quiet your PC with this component-by-component guide

TIME 02:06 HOURS:MINUTES

We've already shown you how to build a really, really quiet PC (February 2005), and many of you did just that. Some folks, however, balked at the idea of buying a Pentium M motherboard, a new CPU, a new case, and other gear to obtain peace and quiet—you simply wanted to hush the machine you currently own. So we've compiled an easy-to-use guide to reducing the noise levels of your rig's various components. We'll take a close look at each of your computer's subsystems and identify its most common sonic maladies, then offer suggestions for reducing—if not eliminating—the noise. We'll recommend bolt-on fixes and tweaks wherever possible, but in some cases, a hardware upgrade will be your best option.

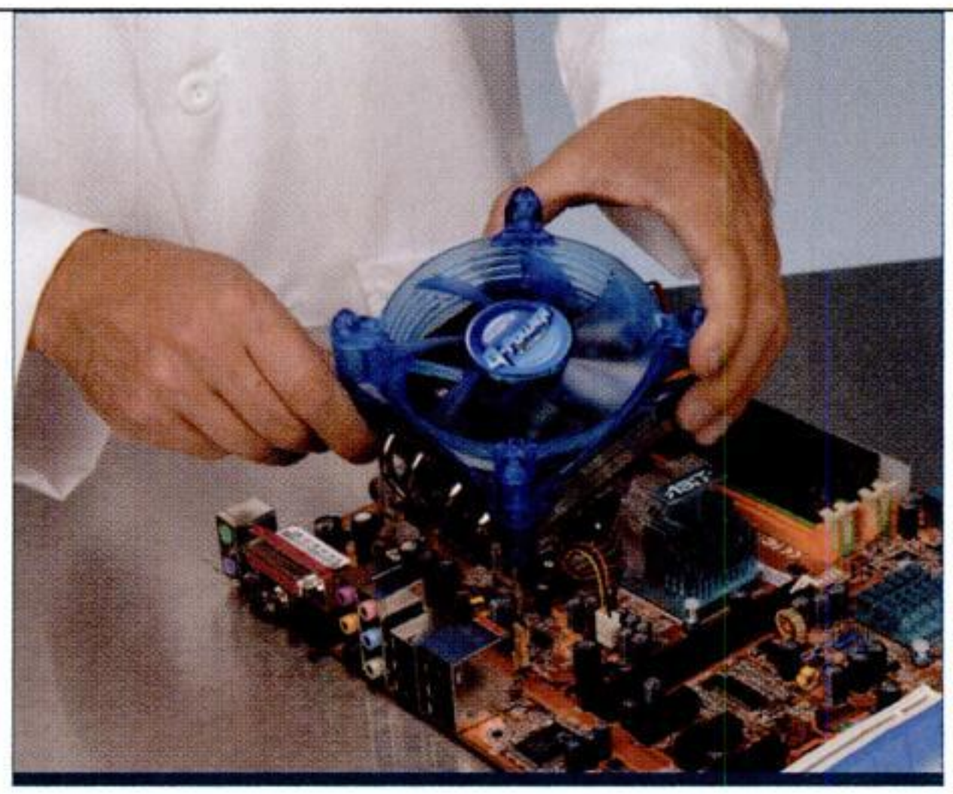
BY JOSH **NOREM**

1 CPU COOLING

The CPU is usually the hottest component in today's PCs; as such, it typically requires the most extravagant—and often the noisiest—cooling apparatus. Reducing the amount of noise emanating from your CPU's cooling system is a huge step toward muting your machine, so let's examine this hotspot first.

As luck would have it, we examine many of the best CPU coolers you can buy in this very issue (see page 90), and our two favorites—Cooler Master's Hyper 6+ and Gigabyte's G-Power—are exceptionally quiet while providing frigid temps. If you're using a stock cooler or an aftermarket unit that sounds like a Hoover, upgrading to one of these silent wonders will bring joy to your ears. Both cost less than $50, so they're an upgrade anyone can afford.

Water cooling is another way to reduce both CPU temps and overall noise levels. It takes care of the heat around your CPU, making a rear exhaust fan—a major source of noise—unnecessary in most cases. Unless you're a serious overclocker, however, water cooling probably isn't worth the time, money, and effort. You can usually achieve quietude with a massive heatsink/fan contraption.



Gigabyte's G-Power CPU cooler offers great performance without a noise penalty—its fan runs at a near-silent 21dBA.

2 CASE FANS

Much of the noise your PC produces comes from the fans whirling away inside it. Choosing the appropriate type and size of case fans, therefore, is a critical step in any PC-silencing venture. As a general rule: bigger is better; larger fans don't need to spin very fast to move lots of air. Small fans, or those running at higher rpms, generate a great deal of noise. A slow-spinning 120mm fan will always be quieter than a fast-spinning 80mm fan, and both can provide the same amount of cooling.

These days, our favorite case fans are Antec's TriCool series. Offered in both 80mm and 120mm sizes, they're equipped with

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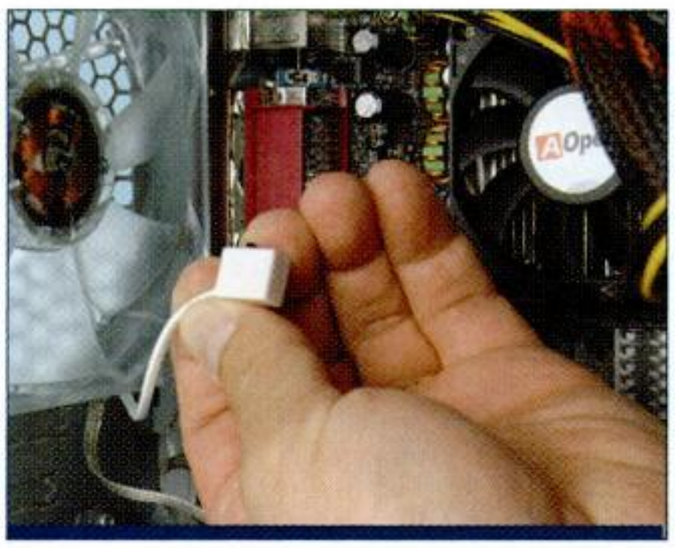


Antec's TriCool fans let you select one of three fan speeds. Some case fans include thermal probes and will automatically adjust fan speed as temperatures rise.

switches that enable you to set their rotational speeds to 1,200, 1,600, or 2,000rpm. Vantec's Stealth series and Panasonic's Panaflo fans are also very popular with PC enthusiasts.

When shopping for a fan, you should always evaluate the volume of air it can move (expressed in cubic feet per minute, or CFM), and the amount of acoustical noise it produces (expressed in adjusted decibels, or dBA). In a perfect world, you could buy a fan with an ultra-high CFM rating and zero dBA output; but because that's impossible, seek an acceptable middle ground: a fan that can generate 40CFM of airflow while producing 30dBA of noise will provide adequate cooling and remain nearly silent.

3 THE CASE

There's not much you can do to make your case quieter, aside from adding acoustic absorption mats to its side panels to dampen the high-pitched whine from fans and drives. We've sampled a few of these mats, including Dynamat and Akasa's Paxmate, and they work well. But you should keep in mind that they also increase case temps a bit.

If you're in the mood for a new case anyway, we recommend purchasing one specifically designed for silent operation: Antec's Sonata II, for example, or its new P180, which is outfitted with TriCool case fans and noise-reducing triple-layer side panels.

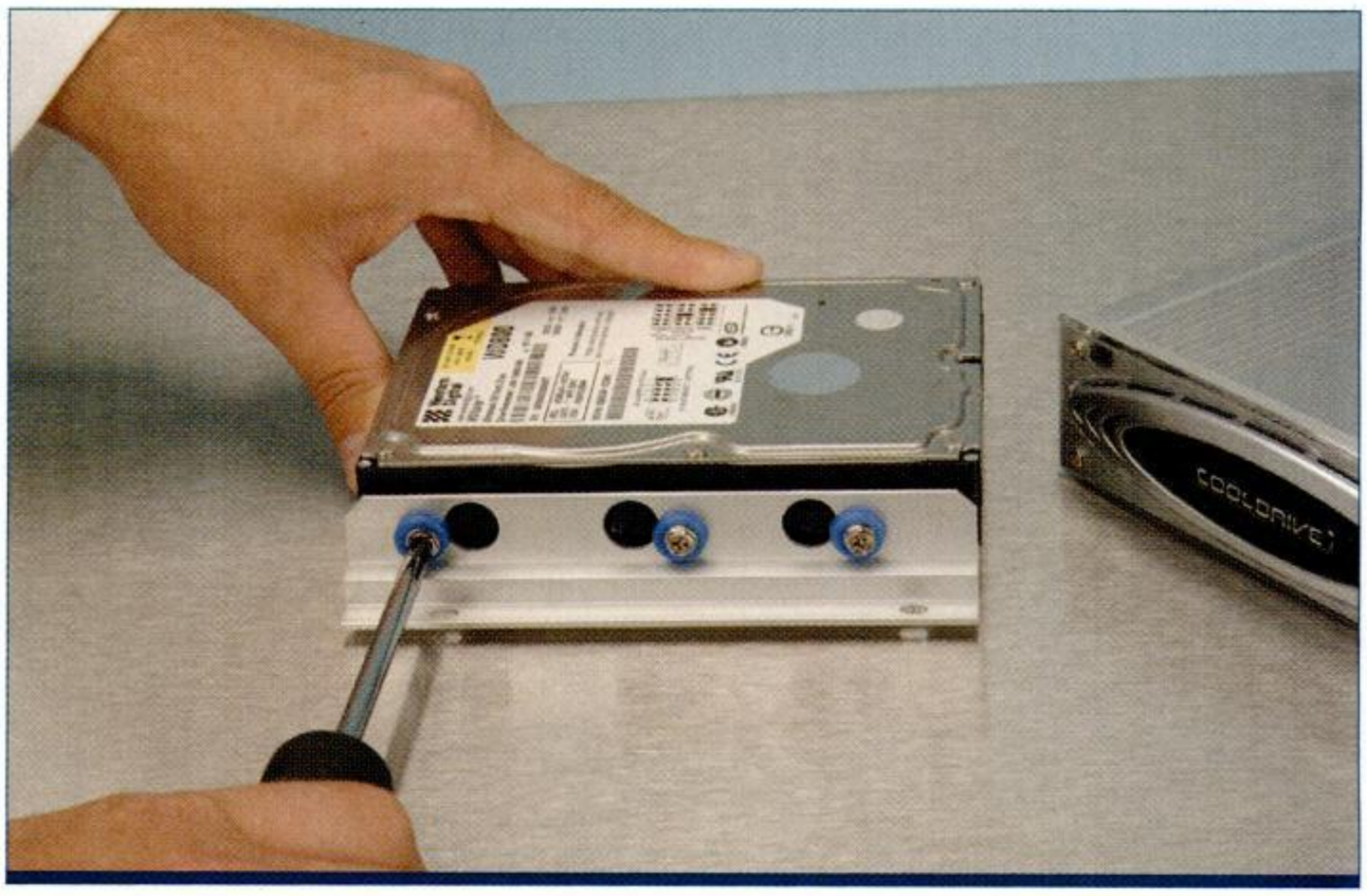
If you're not willing to buy a new, "silent" case, your best option is to install sound-dampening material inside your current enclosure.

4 MAGNETIC AND OPTICAL STORAGE

Aside from fans, your PC's hard drive is one of its noisiest components, but it's traditionally difficult to silence. One solution is to place the drive inside a padded and sealed anti-vibration drive enclosure. This will reduce its noise profile and restrict the amount of vibration the drive transfers to the case. Using this type of enclosure will also allow you to remove the intake fan from the lower-front of most PCs. Alternatively, you can buy some cheap rubber O-rings at a hardware store and use one on each of the four mounting screws.

If you're looking to replace your hard drive altogether, the introduction of fluid-bearing spindle motors has rendered modern hard drives exceedingly quiet. For even further quieting, Hitachi's new DeskStar drives come with a unique software utility that will slow down the drive's seek time for near-silent operation.

Silencing optical drives is nigh impossible; your best option is to upgrade to Samsung's model TS-H552U. Thanks to a fluid-bearing spindle motor, this is the quietest drive we've ever tested—it's whisper-quiet even at full speed!



Hard drive enclosures like this Cooler Master model quell drive noise by reducing the amount of vibration transferred to the case during operation, and by using a teeny, silent fan to cool the drive.

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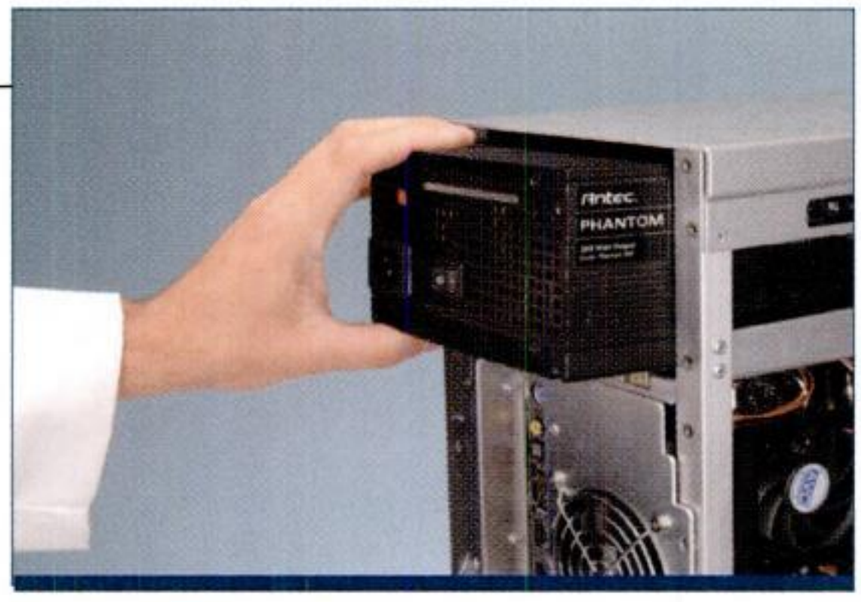
5 VIDEOCARDS

The cooling contraptions on many of today's videocards are insanely loud, and if you're going for full-monty performance, you should stick with the stock cooler. Low-noise videocard cooling solutions are generally designed to handle midrange cards—not dual GeForce 6800 Ultras in SLI. The only quiet solutions we've seen for high-end videocards are water-cooling setups with water blocks, pumps, and so forth. While it's acceptable to put a 5-inch-tall copper heatsink on top of a CPU, a videocard's clearance requirements limit your options—you don't want to block adjacent PCI Express slots. The primary objective of most VGA-cooler designs, therefore, is quiet operation as opposed to super-cool operation.

If you're running a midrange card and can't stand the noise, here are a few options: Zalman and Thermalright both manufacture VGA coolers that are essentially massive bolt-on heatsinks equipped with slow-spinning fans (we've tested Zalman's, and it worked just fine on our vanilla GeForce 6800 card). There are also several fanless VGA heatsinks on the market, including Thermaltake's Schooner. The Schooner uses heat pipes to move heat away from the GPU core and into an aluminum heatsink that wraps around both sides of the card.

6 POWER SUPPLY

If you want a zero-decibel PSU, the only solution is a fanless model. Antec's Phantom series, Thermaltake's PurePower, and Silverstone's Nightjar PSU all use large passive coolers instead of noisy fans. We discovered that fanless supplies don't work well with fanless water-cooling setups—with absolutely no air circulating around the CPU area, the capacitors, memory, and MOSFETs on the PSU get way too hot.



Fanless PSUs are fabricated using aluminum heatsinks. They can become extremely hot during operation, but they're absolutely silent.

If you're not ready to buy a new power supply, installing rubber gaskets where the PSU mounts to the case will at least reduce the amount of vibration (and noise) that's transferred from the supply.

7 FAN CONTROLLERS

Who says your case fans must spin at a constant velocity? Connect them to a fan bus and you can spin them up while gaming or tasking your PC with other high-load chores, then spin them down to reduce system noise when the PC is idle. You'll see many such devices on the market.

Thermaltake's HardCano 13 controls up to four case fans automatically, spinning them softly at idle and furiously during gaming.

Thermaltake's HardCano is one of our all-time favorite fan buses. The latest model, the HardCano 13, comes with a set of thermal probes that you can mount in various areas in your PC. Connect your system fans to the device and they'll spin up and down as the probes report temperature increases and decreases. You can even set thermal alarms for each probe. Now *that* is cool (pun intended). MPC

Ask the Doctor

Diagnosing and curing your PC problems

QUOTING THE RAM KORAN

I just purchased 512MB of PC800 RDRAM to upgrade my PC, which brings its total memory to 768MB. I have a 40GB hard drive. According to "The RAM Koran" in your "Ultimate Upgrade Bible" [April 2005], I should have at least 1GB of RAM, and that 2GB is becoming the norm. Should I buy more RAM to bring my computer up to speed? And what's the difference between DDRAM and RDRAM? Or should I stop spending money on upgrades and save it to buy a new system?

—R. Cadet

You should stop spending money on RDRAM. Save your funds until you can afford to replace the motherboard, CPU, and RAM. To answer your question about RDRAM, the acronym stands for Rambus DRAM. Intel and Rambus once expected RDRAM to replace PC100 RAM because it was faster and easier to scale to higher speeds. Rambus, however, turned greedy and developed a nasty reputation for suing other memory makers. This seriously hurt RDRAM's adoption rate. After an industry battle worthy of *The Lord of the Rings*, DDR DRAM (double data-rate DRAM) supplanted RDRAM as the memory technology of choice. And that's too bad, because RDRAM had a lot of potential.

SLAVE DRIVER

I have an NEC 3520A recordable-DVD drive configured as a slave drive on the secondary IDE channel. I'm using a LiteOn CD burner as the master. Is there a difference in performance based on which drive is the master and which is the slave?

—Edward Cheng

You'll take a performance hit only if you try to use both drives at the same time. If you record mostly DVDs, therefore, you should configure the NEC as the master drive in that chain. If you record mostly CDs, on the other hand, you should leave your configuration as is.

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Protect yourself from Phishing & Pharming

If you've ever received an e-mail from PayPal, eBay, or a financial institution in which the sender asks you to log onto a website to confirm your online user ID and password, you've witnessed the handiwork of an Internet con artist.

These types of fraudulent e-mails are classified as "phishing" schemes, because crooks chum the waters with millions of pieces of spam, hoping a few fish will swallow the bait. The problem occurs when you click what you assume to be a legitimate link in the e-mail. Sure, it says "www.ebay.com," but the HTML code within the message masks the true destination: a criminal website hosted who-knows-where with the sole purpose of stealing your identity.

Pharming exploits often go hand-in-glove with phishing schemes, but the former can be much more difficult to identify—and thus far more effective. One of the most sinister pharming techniques exploits the vulnerability of the Internet's domain name system (DNS). The DNS translates web and e-mail addresses into a unique IP address. If a hacker manages to "poison" a DNS directory—altering it so that a familiar URL becomes associated with a string of numbers pointing to a fraudulent website—he can funnel thousands of unwitting victims into his clutches, even though the victims typed the correct URL into their browser.

Trojans are yet another insidious threat that can make pharming easier for hackers. The Banker trojan, for example, accomplishes the same goal as DNS poisoning by rewriting your PC's local host file. Because your web browser checks your local host file first—and the data in the local host file overrides the information contained in the DNS servers—a thief can direct you to a fake website and snatch your bank login, and you might not even know it until it's too late.

Be it phishing or pharming, the intent is to trick you into revealing your login ID and password, or to install spyware on your PC that's capable of stealing even more sensitive information. The good news is that you're not defenseless. The key is to practice safe surfing and to remain ever-vigilant.

BY MICHAEL **BROWN**

Don't be a sucker—protect your identity and your bank account

TIME 24/7 HOURS:MINUTES

1 DON'T ASK, DON'T TELL

Here's one absolutely simple way to protect yourself from phishing schemes: Never, ever, *ever* respond to an e-mail query from a financial institution, auction site, or anyone else asking you to confirm your identity on a website. Legitimate organizations will never ask for this information via e-mail, so you should never reveal it.

For whatever reason, PayPal and eBay customers are among those most frequently targeted by criminals orchestrating phishing schemes.

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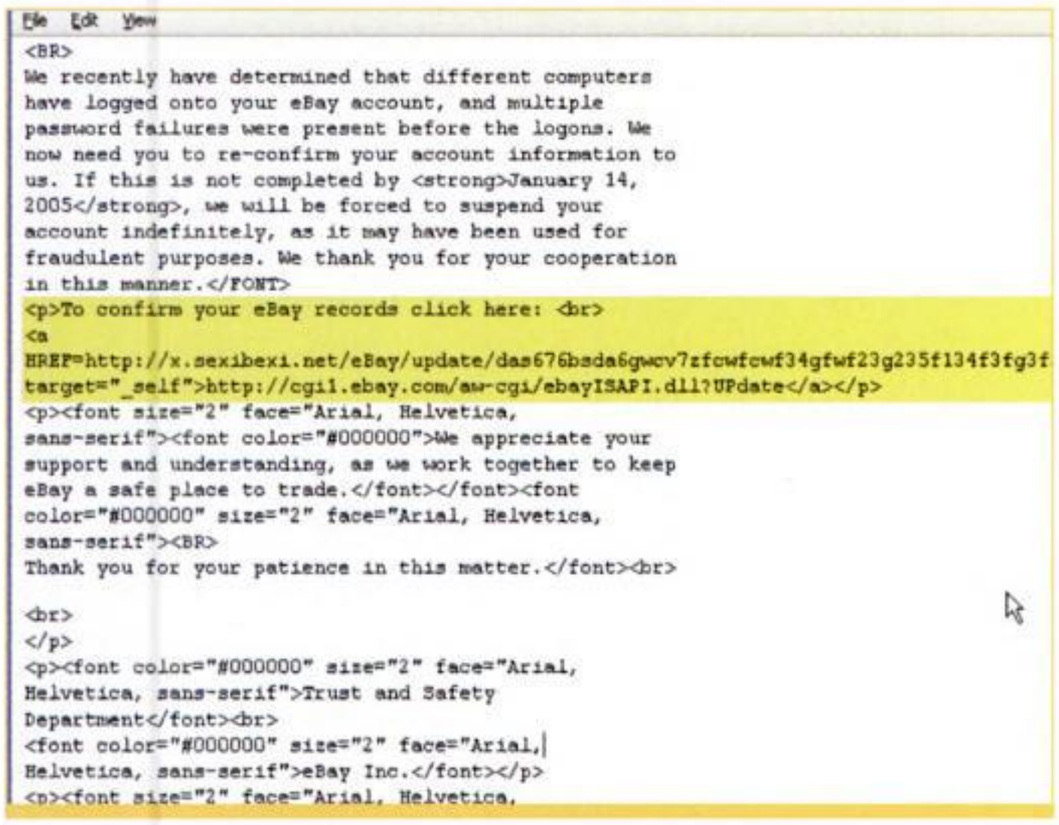
2 KNOW YOUR SOURCE

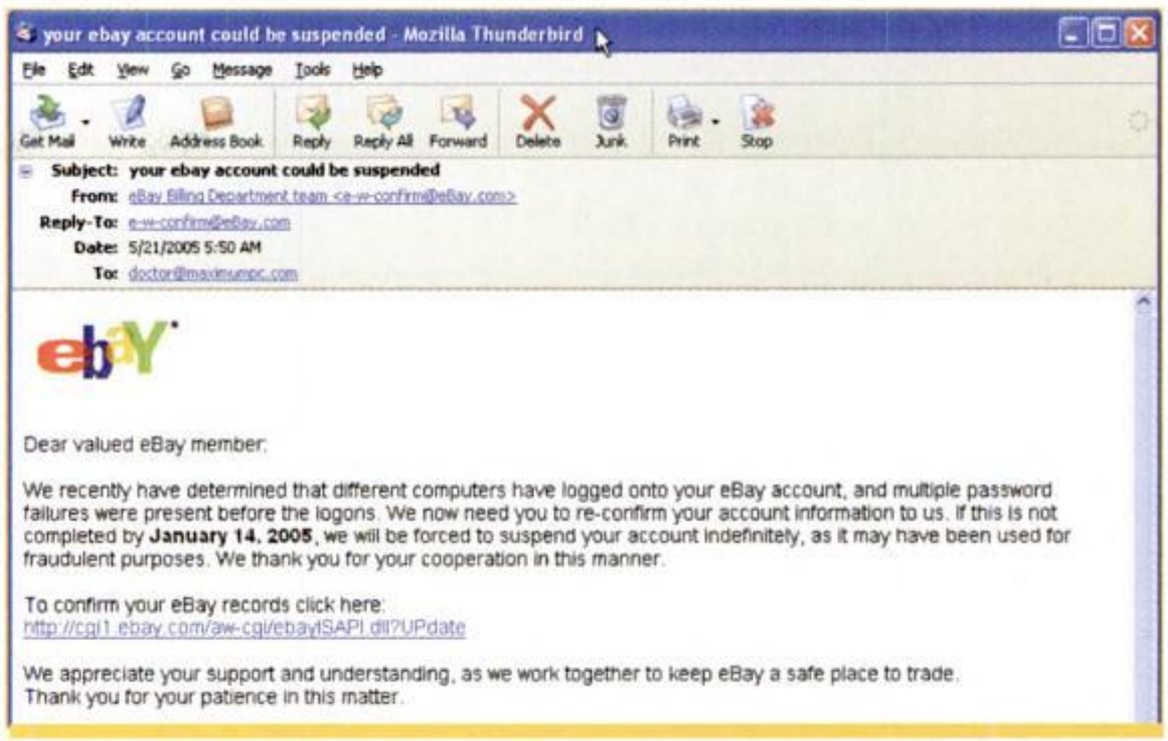
If you're not a customer of the financial institution or other company that's pinging you for information, immediately delete the e-mail. Hackers cast a wide net in the hope of catching a few victims.

3 RESIST THE URGE

Never click the hyperlinks contained in an e-mail, even if the correspondence looks perfectly legit; for that matter, even if the correspondence *is* legit. It's a habit you need to get into, because masking the URLs embedded in HTML code is child's play for a hacker or other malcontent. Type the URL into your browser instead, and then bookmark the site for future reference.



If you're ever in doubt about where the URL link in an HTML e-mail will really take you, use your e-mail client's reveal-source tool.



Don't have an eBay account? That makes this e-mail mighty suspicious then, doesn't it?

4 FAKE LEFT

One way to reduce the chances of being taken in by a fraudulent website is to first provide a password you know to be false. If the site accepts the bogus password, you know there's something amiss.

5 USE PROTECTION

Malcontents exploit browser vulnerabilities and use viruses to get your data. Keep your web browser and your antivirus software's virus definitions up-to-date at all times. Most virus software has an auto-update feature for this purpose. If you're using *Firefox*, you can configure it to check for updates either automatically or on demand: Click Tools, then Options, and then choose Advanced and scroll down to Software Update. To update *Internet Explorer*, click Tools, then Windows Update, and follow the directions on Microsoft's Windows Update website.

If You Get Hooked

As with all other criminal activities, phishing and pharming schemes will likely be around as long as there are Internet users to victimize. Fortunately, it's relatively easy to keep yourself out of harm's way. And if you're ever defrauded by a scam artist, you can minimize the damage by acting quickly.

Be a Narc

If you suspect you might have inadvertently given away your login and password to a service or financial institution, contact the company quick-like and inform them you were the victim of fraud—and change that password anywhere else you might have used it (although you shouldn't be using the same password in more than one place anyway).

Sound the Alarm

If you've surrendered personal information—credit-card info or your Social Security number, for example—ask the three major credit bureaus (Equifax, Experian, and Trans Union) to place fraud alerts on your credit file. Close any accounts you know or suspect have been tampered with. Report the incident to your local police department, complete with an ID Theft Affidavit, and file a complaint with the Federal Trade Commission. The FTC maintains a database of identity-theft cases—Consumer Sentinel—that law-enforcement agencies in the U.S., Canada, and Australia use in their investigations. If phishing and pharming schemes can't be eliminated, we can at least make things more difficult and costly for the cretins who orchestrate them. MPC

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how2 IMPROVING YOUR PC EXPERIENCE, ONE STEP AT A TIME

Time To **Clean Up!**

Keep your PC—and your peripherals—squeaky clean and dust free.

TIME 00:30 HOURS:MINUTES

BY MICHAEL **BROWN**

Sometimes, you just need to sit back and survey the landscape before you dive into your next project.

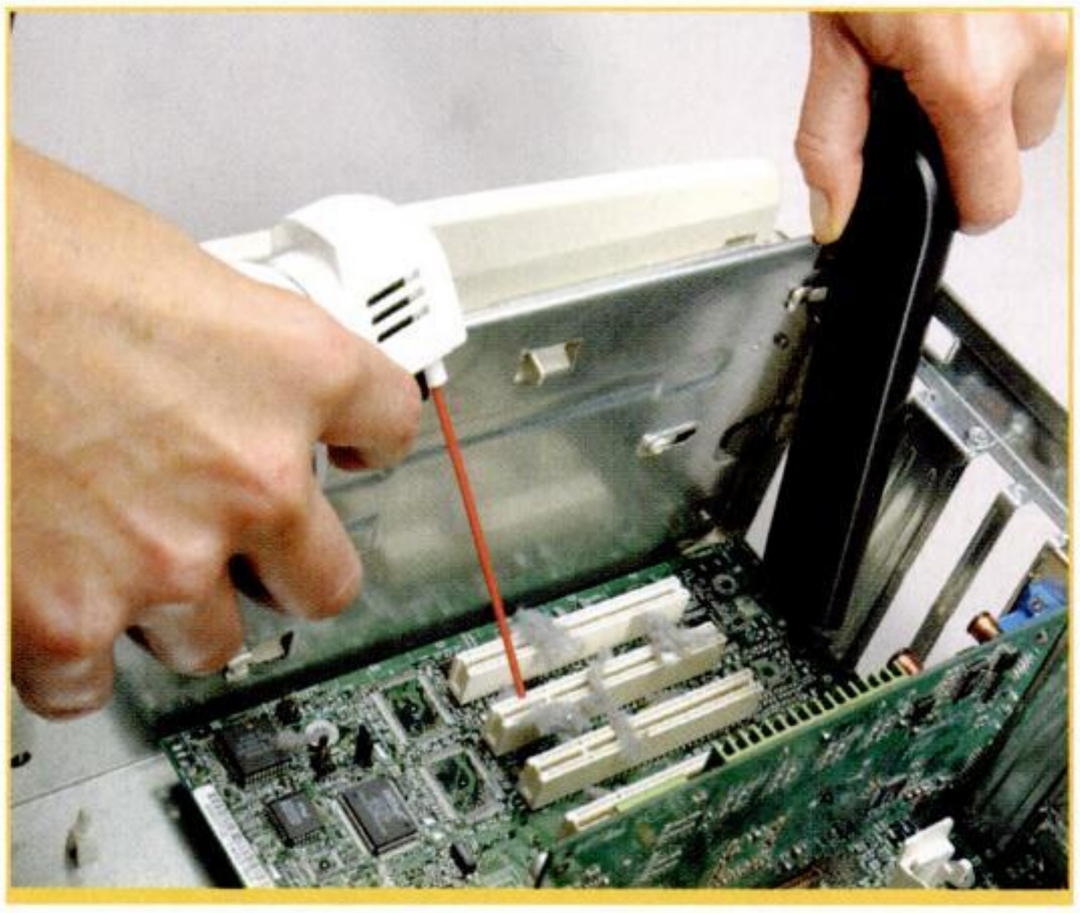
When's the last time you filed your bills and other important correspondence, deleted old email, optimized your computer's hard drive, or performed any of the other chores that are essential to any smooth-running operation?

Spend a little quality time on housekeeping chores, and you'll spend a lot less time dealing with unproductive downtime because you can't find what you're looking for; or worse, because your PC is on the fritz.

HOUSEKEEPING TIPS

Even if you enjoy the luxury of having a house-cleaning service take care of the cleanliness of your home or home office, they're not going to take care of your computer's hygiene needs—nor would you want them to. But dust is one of your PC's biggest enemies.

Over time, the cooling fan that keeps your PC's internal components at a reasonable temperature can pull huge amounts of dust, lint, and other garbage inside the case.



Blow the dust bunnies out of your computer's interior with a can of compressed air, but take care not to touch any of the components inside.

Some of this detritus will settle on the electronic components inside the case, reducing the computer's ability to cool itself. And if your computer overheats, it's eventually going to fail, putting your valuable data at unacceptable risk.

Your first instinct might be to stick a vacuum hose next to the vent, but that cure is actually worse than the disease. The best thing to do is open the case—taking care not to touch any of the electrostatic-sensitive components inside—and blast away the dust bunnies with a can of compressed air. (You'll find this product at just about any computer or office-supply store.) Once the dust has settled and you've closed up your computer's case, then you can vacuum the dust off the floor.

When it comes to PC maintenance, a can of compressed air is one of the best investments you can make. When you're done blowing out your computer's innards, aim the nozzle at the ventilation slots on your monitor, too. And then start blasting away at your keyboard.

Next, disassemble your mouse, take out the ball inside (unless you have one of the newer optical mice), and give the inside of that device a couple of blasts. You might also want to take a cotton swab dipped in denatured alcohol (an ammonia-and-water solution will work, too) and clean the rollers inside the mouse. Clean any dust or lint off the mouse ball before you drop it back inside.

To clean your keyboard, simply tilt it upside down so that any loose debris falls out. Use the compressed air to blast out any stubborn bits. You can use an ammonia-and-water solution to clean any grime that's accumulated on the keyboard; alternatively, office-supply stores sell pre-moistened anti-static towels that will also do the trick.

Use the same technique to clean your monitor, but under no circumstances should you open the monitor's case. This is especially true of a CRT (Cathode Ray Tube) monitor, which contains high-voltage components. MPG

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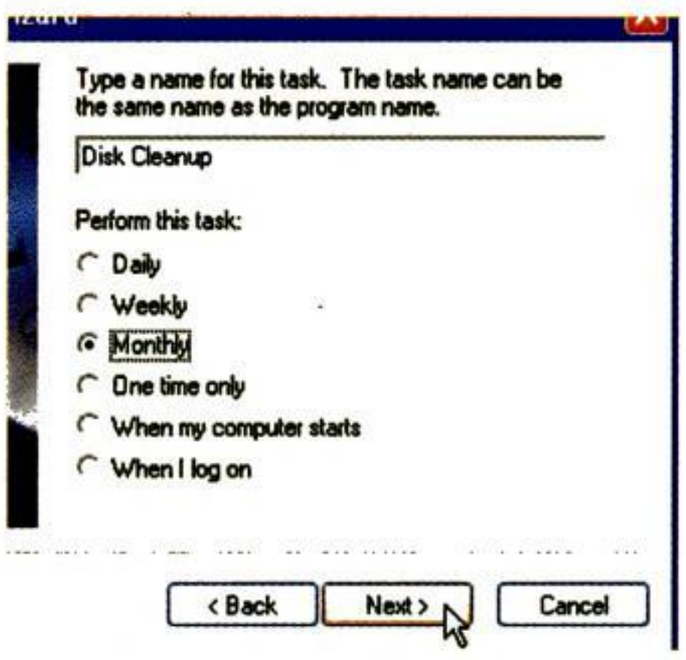
AUTOMATED DISK CLEANUP

Just as with a maid service, you can schedule Windows XP to do some cleaning on a regular basis. In this exercise, we'll use the Scheduled Tasks Wizard to automatically schedule a disk clean-up.

1 Click on the Start menu, point to All Programs, Accessories, System Tools, and then Scheduled Tasks.

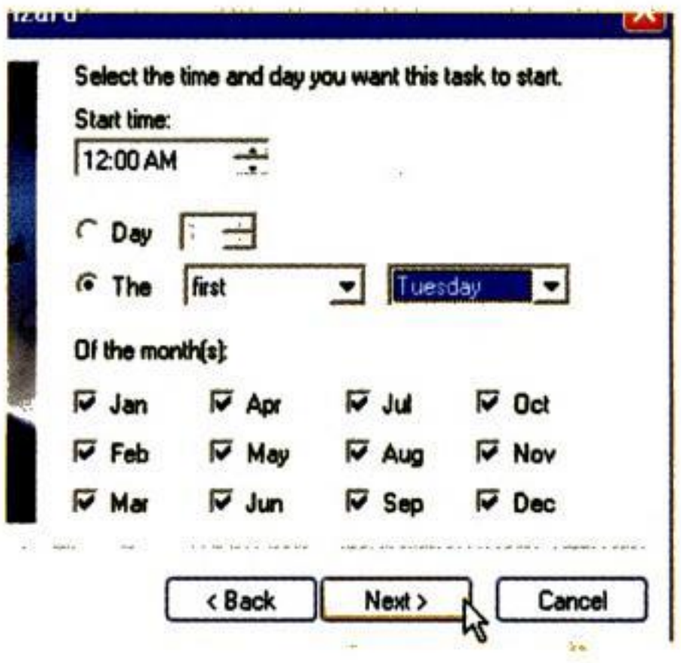
2 Double-click on the Scheduled Task menu item in this window.

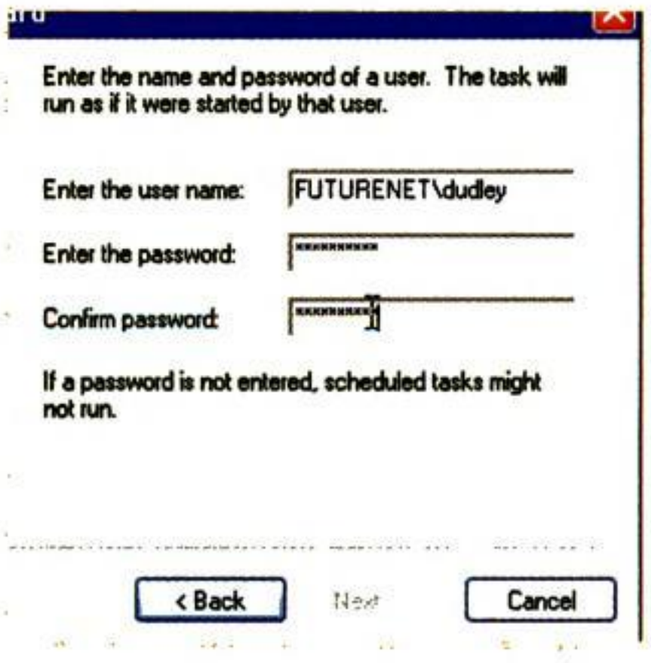


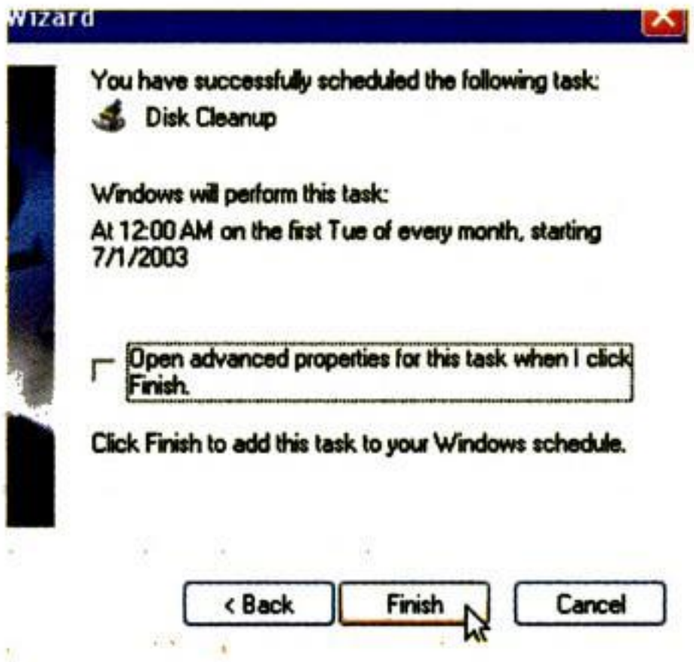
3 When the Scheduled Task Wizard appears, click on Next.

4 Scroll to the Disk Cleanup item. Select it; then click Next.

5 Give the task a name, and then select how frequently you want your disk cleaned. Click Next.







6 Indicate what time you want the disk cleanup performed (pick a time when you won't likely be using the machine). Click Next.

7 Enter your log-on user name and password, and then click Next.

8 Click Finish and Windows XP will automatically clean up your hard drive on a regular basis!

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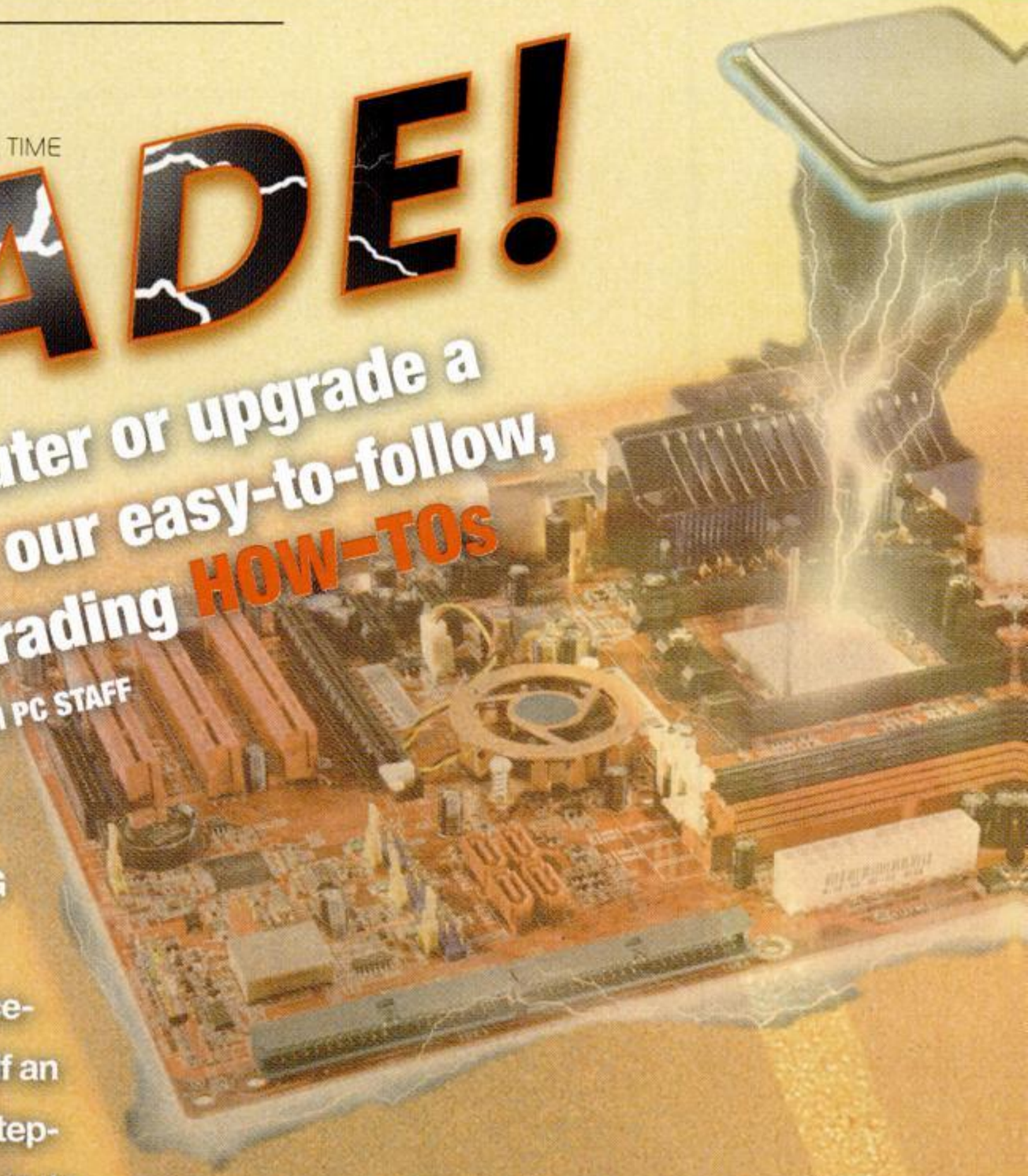
how2 IMPROVING YOUR PC EXPERIENCE, ONE STEP AT A TIME

UPGRADE!



OVERHAUL your computer or upgrade a lagging component with our easy-to-follow, STEP-BY-STEP upgrading HOW-TOs

BY THE MAXIMUM PC STAFF

UPGRADING YOUR PC IS A LOT LIKE LEARNING TO DRIVE: It's not difficult, but the results can be disastrous if you don't follow the proper procedures. We urge you to read this story and spare yourself an expensive and heartbreaking upgrade gone bad. Our step-by-step instructions show you the very best way to upgrade every one of your PC's major components. Here's a tip: Before you start a component upgrade, read the guide for that component completely through; that way, you'll be prepared for what's to come and you'll be less likely to skip a crucial step by mistake.

Trust us—we've fried enough hardware to know right from wrong when it comes to upgrading. Learn from our mistakes and get your new, improved rig up to speed faster than ever before!

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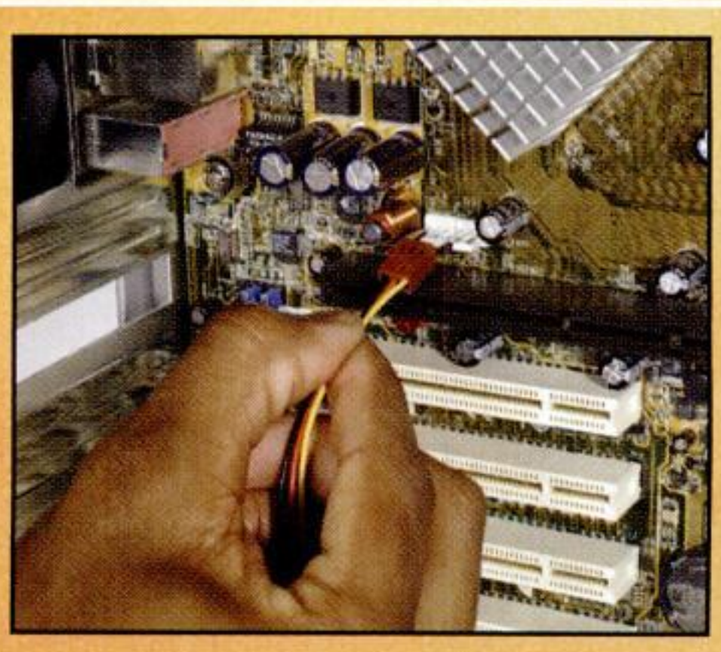
Upgrade Your Motherboard STEP-BY-STEP

Because the motherboard is the foundation of your entire PC, upgrading it provides many opportunities for you to thoroughly screw up your rig and crush your spirit. But it doesn't have to be that way. All you need is paper, a pencil, your new mobo, and a Phillips screwdriver.

1 Make sure you're grounded before you touch any components; it's as easy as touching the metal portion of your case while the machine is still plugged in. Remove all your old add-in cards and memory, storing your components in antistatic bags while they're out of your rig.

2 Unhook all power cables, drive cables, and any case-fan power connectors from the motherboard. Unplug the wires connecting your case's front-panel power and reset buttons, too.



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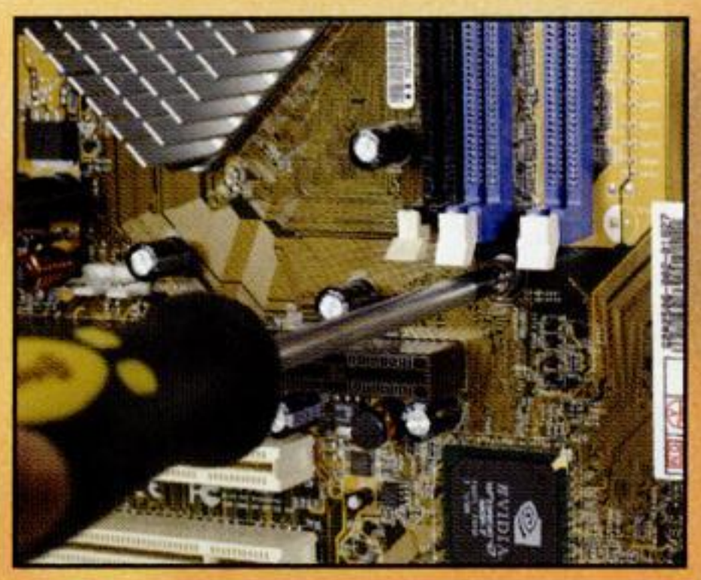
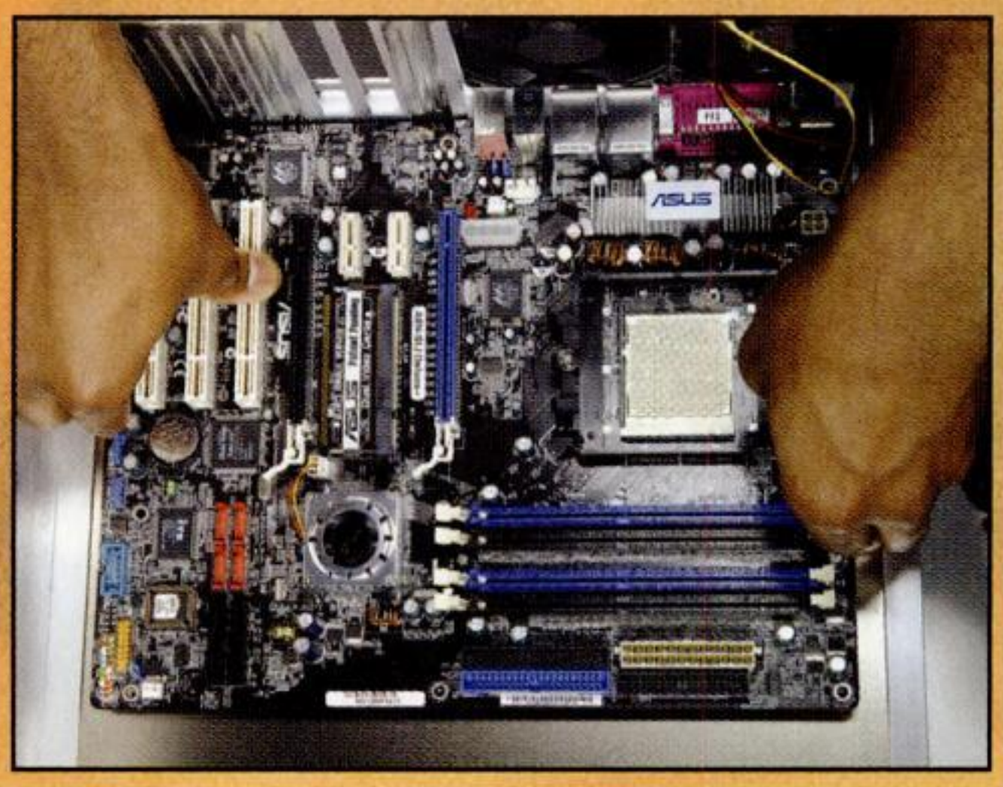


3 Most cases use several Phillips-head screws to hold down the motherboard. Unscrew each of them, and then carefully lift the mobo out of the case.

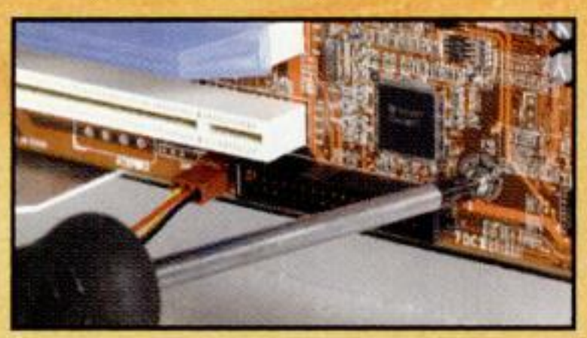
4 Remove the mobo's old I/O shield from your case. A quick thwack with the handle of a screwdriver will pop the shield right out.

5 When installing the new I/O shield, make sure all the knock-put panels have been removed, and that the holes match your motherboard's ports. You should also ensure that the grounding contacts atop the PS/2, NIC, and FireWire ports are bent up so they won't get jammed into the ports when you install the new mobo.

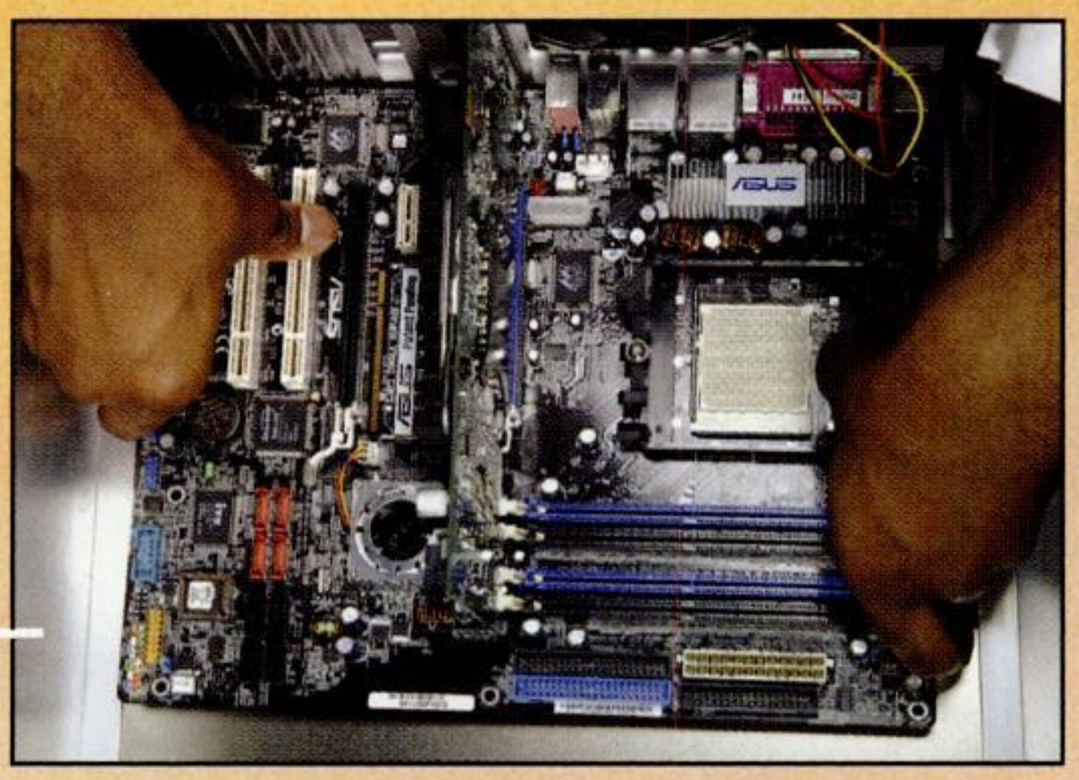
6 Before you mount your new motherboard, count the mounting points in your case and write the number down on a piece of paper. If there are more or fewer mounting points on the mobo than in your case, adjust the standoffs in the case to line up with the mobo before you drop it in the case.



7 If you haven't already installed your new CPU and heatsink, turn to page 76; otherwise, you're ready to mount your mobo inside the case. Hold the board over the case and match the case's mounting points with the holes in the motherboard. Shift the board slightly until they're perfectly lined up.



8 With the mounting points set up, carefully lower the board into place. Insert the screws and hand-tighten them, but don't screw them all the way down.



9 Install an expansion card into the board to check the spacing—nudge the board around until the card is easy to insert and remove.

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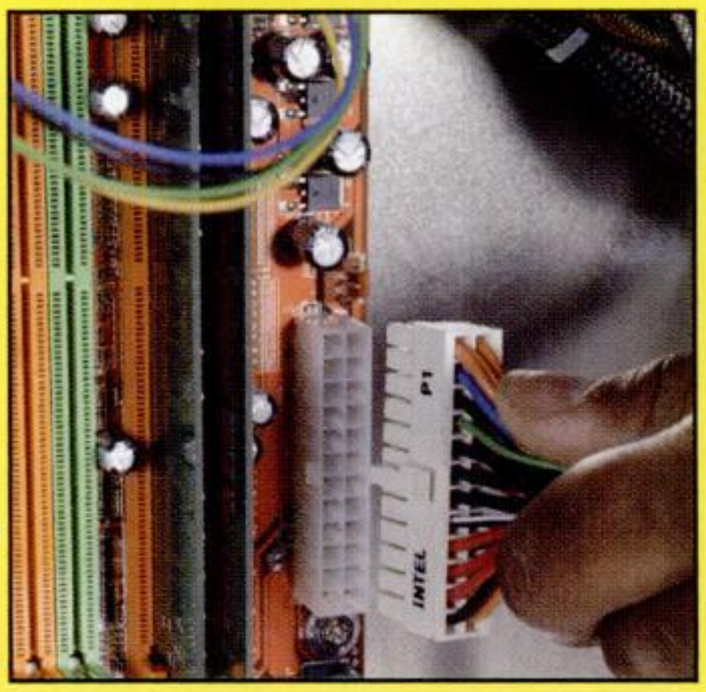
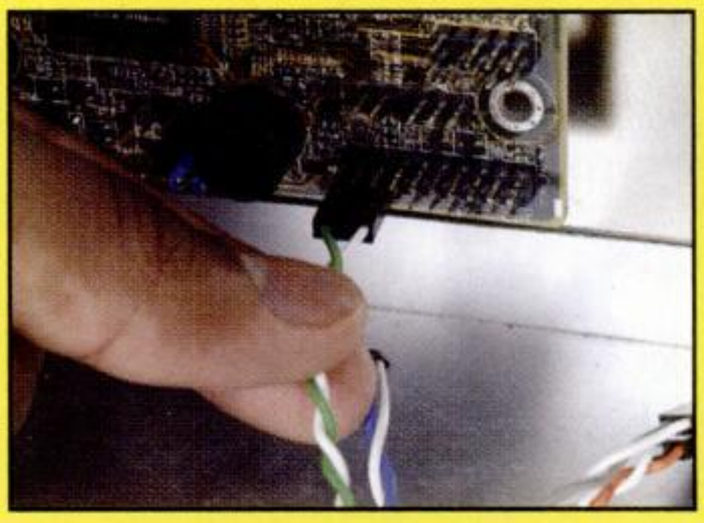
Upgrade Your Motherboard [continued]

10 Screw down the board, using enough torque to keep the screws from vibrating out, but not enough to crush the PCB. When you're done, count the number of screws you used. If the number doesn't match what you wrote down earlier, you missed a mounting point that could short out the underside of your board. Pull the board and locate the missing mount point.

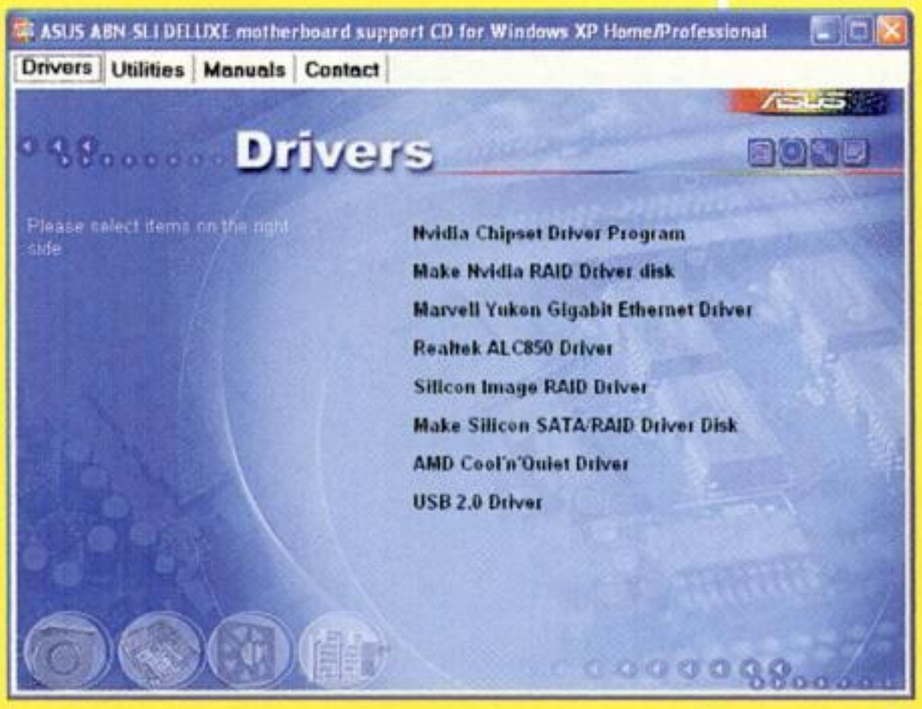


11 Plug the power and drive cables back into the board. If you're moving from an older AGP motherboard to one that supports PCI Express, your existing power cable won't match the new mobo (the cable is keyed to fit only one way, however, so don't force it). Newer motherboards have a 24-pin power connector, but it's not necessary if you have a good power supply. If you're certain your 20-pin power supply delivers enough juice, insert the 20-pin plug into the 24-pin jack on the motherboard. This will leave four open pins on the motherboard jack, which would otherwise supply power to the graphics card.

12 Connect the four-pin ATX12V plug. If your PSU doesn't have the square plug, it's really time to buy a new power supply. If your machine sporadically crashes while playing games or doing heavy computation, your PSU might not be providing enough juice; if that's the case, you'll need to purchase and install a new one (see the bottom of page 78).



13 Plug in the front panel I/O, add-in cards, and memory. You'll find directions for connecting the front panel I/O in your motherboard manual (each mobo is different, so consult your documentation). If you're sure you've connected the correct jumpers, but the hard drive or power light won't turn on, you probably have the polarity reversed. Reverse the connector and you should be good to go.



14 Boot the computer. Because you've just replaced a major component, you should really do a clean install of your OS. Even if you don't, Windows XP's activation "feature" might force you to reactivate the OS. Whether or not you do a clean install, you'll need to install the chipset and device drivers for your particular motherboard.

15 You're almost done. Go into the motherboard's BIOS and set the proper boot order (typically optical drive first, then hard drive, and then any other bootable devices you have). You should also double-check that the mobo correctly detected your CPU and that the front-side bus and RAM are running at the proper speed. Each motherboard model is a little different, so you should consult your documentation for the full scoop.

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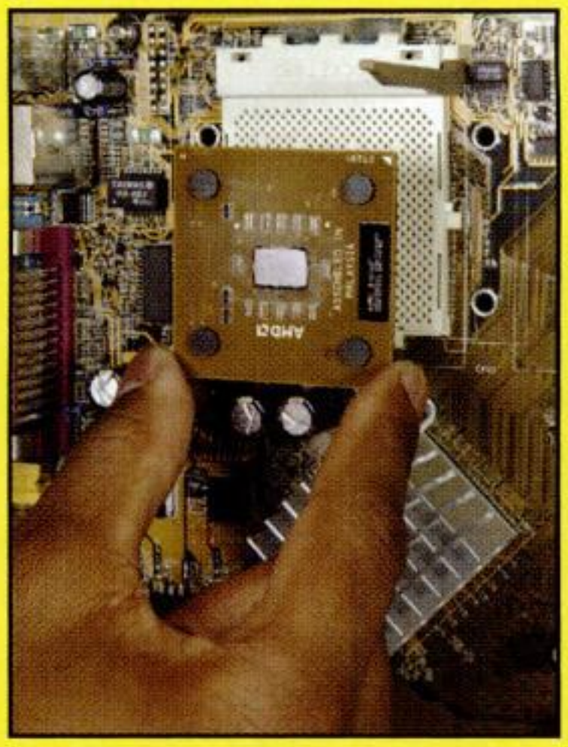
9.4 RESELLER

Upgrade Your CPU

The first step in any CPU upgrade is to choose the right processor for your motherboard. The safest way to do this is to visit your mobo maker's website and look for a list of CPUs the manufacturer has certified. If you're feeling frisky, you can cruise the Internet to see if people are running CPUs beyond what the mobo maker has tested, but we don't recommend this tack for newbies. The second step is to update your motherboard BIOS; if you don't, there's a chance your machine won't boot with the new processor. Only then are you ready to begin.

1 Remove the old CPU heatsink by first prying off the heatsink retention module. This will vary from one heatsink to another, so you might want to consult the manufacturer's web site before you dismantle your PC. Once you've released the heatsink, carefully twist it left and right until the thermal paste works loose. If the heatsink is really stuck, fire up the machine and run a CPU-intensive application to heat up the processor. The heat will soften the paste, and then you can shut your PC down and attack the heatsink again.

2 Now that the old heatsink is off, simply flip up the arm that locks the CPU in place, remove the old CPU, and put it in the CPU cookie jar. If you'd like to use it in another machine, place it on a clean, static-free surface. Once you've installed the new CPU, put the old one in that packaging until you need it again.



SOCKET 478, 754, AND 939 PROCESSORS

3A Examine the notches on your new CPU to make sure it's properly aligned with the socket. Socket 478 Intel chips and Socket 754/939 AMD chips have an arrow that should match up with the arrow on the CPU socket. Carefully insert the chip into the open socket. There should be very slight resistance going in; anything more means you either have a bent pin on the new CPU or you have it lined up wrong. If you suspect something's gone awry, stand down immediately and take a look!

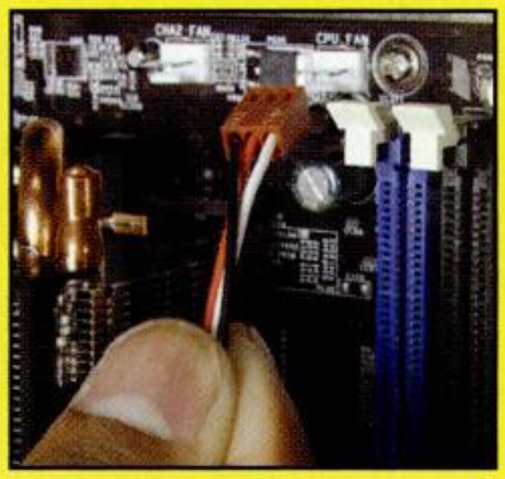
LGA775 PROCESSORS

3B To install an LGA775 proc, hold the CPU with your thumb and forefinger directly over the socket. Lower the CPU straight onto the socket. Don't drop one side and then the other, and don't slide the CPU over the top of the socket: Either of these actions has the potential to kill the motherboard. Push the locking bracket down to secure the CPU in place.

Socket 939 motherboard

4 If you're using your old heatsink (you made sure it's capable of cooling your newer, hotter CPU, right?), you need to clean off all the old thermal paste using a lint-free cloth soaked in isopropyl rubbing alcohol. We recommend the 99 percent stuff you get at the pharmacy, but we've never had problems with the 70 percent grocery-store variety, either. Now, place a BB-size dab of thermal paste in the center of the mounted CPU. When you lock down the heatsink, the pressure should spread the thermal paste over the entire surface of the CPU.

5 Reattach the bracket for the heatsink, plug in the fan, and fire up that bad boy!



6 The last step in this installation is to verify that your CPU is running at the correct speed. Enter the BIOS settings screen by holding down the F2 or the DEL key during boot. When you're in, check the values for the CPU multiplier and front-side bus speed.

For photography purposes, several different motherboards were used. We strongly discourage any attempt to use a Socket 939 CPU in a Socket A mobo.

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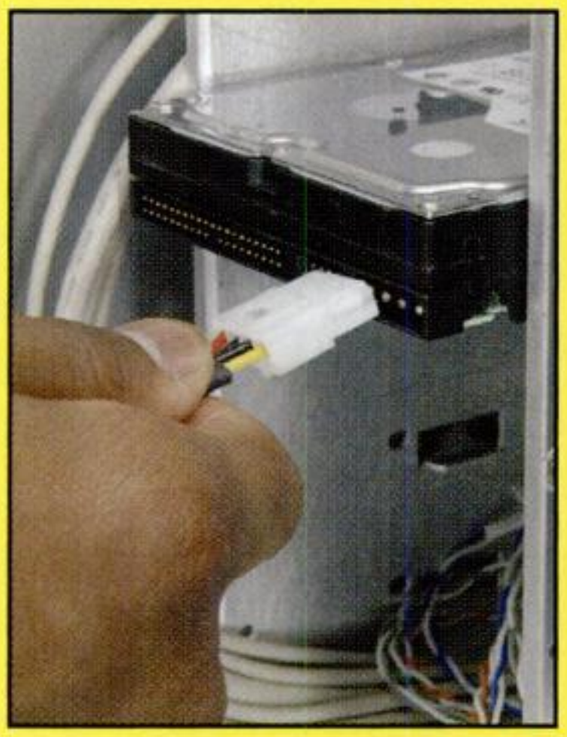
Upgrade Your Hard Drive

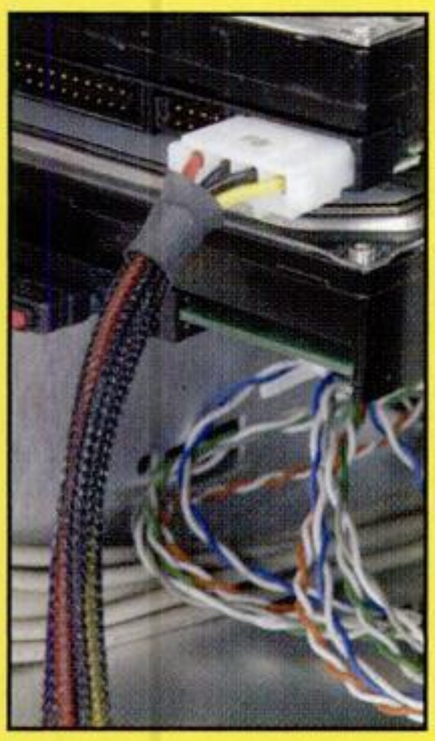
The golden rule for buying a new hard drive is to buy as much capacity as you can afford—no one ever complains about having too much storage. Today's highest-capacity desktop drives offer 500GB but are painfully expensive at about $1 per gigabyte. Our advice is to put your cash toward a drive in the 300GB to 400GB "sweet spot." These drives cost between $150 and $250, which is a mouth-watering bargain considering their prodigious size and lightning-fast performance.

If your motherboard gives you the choice of using Serial ATA or Parallel ATA, we heartily recommend going with the former. SATA drives are much easier to install; besides, PATA will go away eventually. Once you've installed your new drive, you'll need to reinstall Windows and all your apps, settings, files, and media. Take a "clean slate" approach to ensure your new, pristine hard drive has a new, pristine copy of Windows on it, rather than a copied-over-and-funked-up Windows image from your old drive.

1 Before you begin, gather all the necessary files you'll need to get a brand-new installation of Windows up and running. This includes your Windows CD, chipset drivers, network drivers, video drivers, and your XP Service Pack 2 disc (if SP2 isn't already built into the copy of Windows you have). If you don't have an SP2 disc, you can download the update from Microsoft's web site. Don't worry about backing up the data on your existing hard drive at this point.

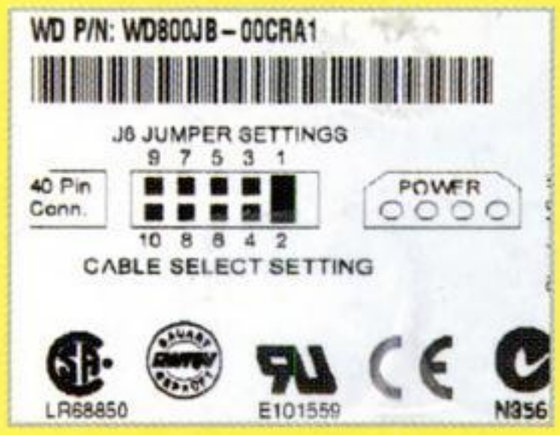
2 Most people leave their old drives inside their PC after installing a new drive. To guard against accidentally installing Windows over your old data, instead of onto the new drive, unplug the data and power cables from your old drive right now. You should also unplug any other drives, including backup drives and USB keys.



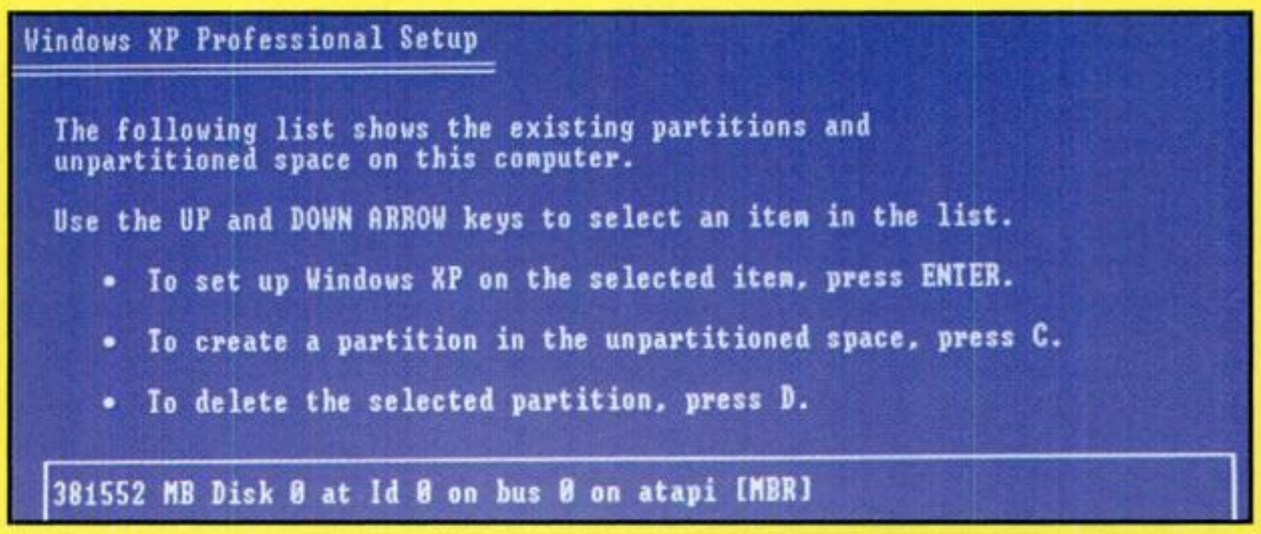


3 Insert the new drive into your case. If you're installing a Parallel ATA drive, skip to step 4. Plug in the SATA data cable and either the SATA power cable or the legacy four-pin power connector. If the drive has both power connectors, use one or the other—not both. Next, connect the SATA data cable to one of your motherboard's main SATA ports (check your mobo documentation) and skip to step 5.

4 Each Parallel ATA channel can handle either one or two devices in a master/slave relationship. You identify a hard drive as being either a master or slave by setting jumpers on the back of the drive; do this incorrectly, and the drive will remain invisible to the operating system. If your new drive will be the only one on the chain (the preferred option), configure it as the master. If it will share the channel with an existing drive that's been configured as the master, configure the new drive as a slave. Next, connect the Parallel ATA ribbon cable to the drive and to the motherboard, and then plug in the drive's power cable.



5 Now that your new drive is connected, it's time to install Windows. If you're sure your mobo BIOS is set up to boot from your optical drive, drop in the Windows CD, and boot 'er up. You'll eventually land at a screen asking which drive you want to install Windows on. Because you had previously disconnected your other drives, the new drive should be your only option. Press Enter to get started, and prepare to savor that minty-fresh-OS feeling!



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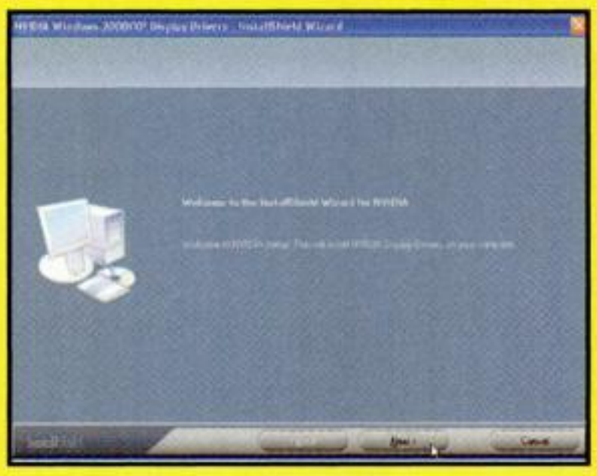
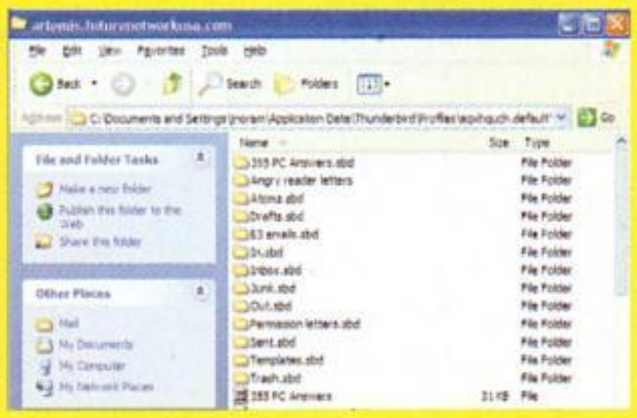
Upgrade Your Hard Drive [continued]

6 Once Windows is installed, the next step is to install all the necessary drivers and files. Start with Service Pack 2 (if it's not already included in your Windows installation), and then move on to your chipset, videocard, network, and any other drivers you might need.

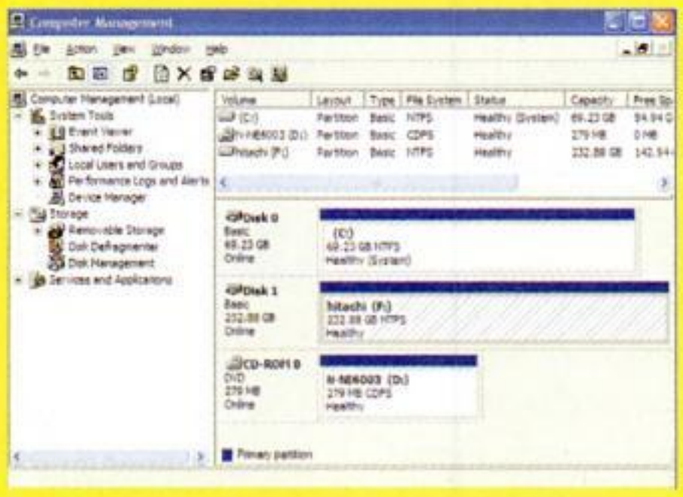


7 At this point, you should have a fully functioning Windows installation with all your drivers installed, all devices functional, and all systems go. Now comes the time to reinstall all your applications, including your games, image-editing software, media-burning apps, email client, and so on.

8 You can easily copy the contents of your My Documents and other personal folders, but you might have to hunt down your email files. Open an Explorer window, click the Tools menu, choose Folder Options, and then click the View tab. Look in the Advanced Settings window and click Show Hidden Files and Folders. Open your email client's Help file and determine where the program stores your email (it's usually in a subfolder of C:\Documents and Settings\<your username>\Application Data).



9 Once you've removed everything you want from your old drive, open Windows' Control Panel and click Performance and Maintenance > Administrative Tools > Computer Management > Disk Management. (Note: If your Control Panel is configured for Classic View, go directly to Administrative Tools.) The horizontal bars you see here represent the drives connected to your PC. The drive identified as Drive 0 and labeled C: will be your main drive (when you reconnect it, your old drive will likely be identified as Disk 1 and labeled D: or E:). To format your old drive—again, make sure you've copied everything you want from it—right-click the volume, select Format and follow the prompts to format the drive. Once it's finished, you can use your old drive as a backup drive or as supplementary storage.



Upgrade Your Power Supply STEP-BY-STEP

PC components in general—and videocards in particular—are becoming increasingly hungry for electrical power. Upgrading your power supply might not seem very sexy, but it could mean the difference between your PC being a steady performer or an unreliable beast. This is also one of the easiest upgrades to pull off, so don't let us catch you whining!

1 Once you've removed your existing power supply—making sure you've first unplugged all the associated cables from the motherboard, videocard, and drives—it's time to mount your new one. Slide the new PSU into its cage in the same way you pulled out the old one—specifics will depend on how your case is designed. Be sure all the power cables are clear of any obstructions, line up the threaded screw holes in the power supply with the holes drilled into your case, insert the screws, and tighten them down.

2 The next step is to plug the power supply's cables into your motherboard, drives, and—if needed—your videocard. Assuming you have an ATX motherboard, you'll insert one 24-pin plug (rectangular in shape) and one four-pin plug (square in shape). SLI configurations may also require a D-shaped Molex four-pin plug as well as special PCI Express videocard power connectors. These plugs are designed to fit only one way. Apply firm, steady pressure, but don't force the plug or push so hard that you flex your motherboard.

Your drives require dedicated power cables—don't use Y cables. Each optical drive requires a D-shaped four-pin plug, and each SATA hard disk requires a flat 15-pin connector (older hard drives use the same D-shaped connectors as optical drives). Floppy drives and media-card readers use smaller connectors. Once you've supplied all your devices with power, plug in all the cooling fans inside the case. Use cable ties to tidy up when you're finished.

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Upgrade Your Videocard

If your videocard is more than six months old, you can kiss chunky frame rates goodbye by upgrading to a new card. The same goes for PCs of any age that are outfitted with integrated graphics. And if you're lucky enough to have an SLI-capable motherboard, adding a second, matching nVidia videocard will nearly double your PC's performance with many games—woo hoo!

When you're selecting a videocard, it's important to know whether you have a newer PCI Express motherboard, or an AGP motherboard. The easiest way to tell is to open the case and look inside. If you see several extremely short (about 1.5-inch) slots, you have a PCI Express board. If you don't see those slots, or see only one, odds are you have an AGP board. An AGP videocard won't fit in a PCI Express slot and vice versa, so know what you have before you go shopping.

Before installing your new card, visit either ATI's or nVidia's website and download their latest device drivers (Catalyst or Forceware, respectively). You'll install these after you install your new card. It's equally important that you uninstall your old device drivers before you swap out your videocard. ATI provides a free utility for this purpose, but you can also use the Windows Control Panel to remove either ATI or nVidia drivers. If you're using Windows XP, make sure you're logged on with Administrator rights, and then open the Windows Control Panel and choose Add or Remove Programs. Locate the relevant driver and click the Change/Remove button. Shut down your PC when you're finished.

1 Unless you're installing a second card for SLI, you'll need to remove your existing videocard. Disconnect the power cable from the power supply (a software shut-down isn't sufficient). Open your case and discharge any built-up static electricity by touching the chassis. Disconnect the monitor cable, and then remove the retaining screw from the mounting bracket. Push down on the retaining clip at the far end of the PCI Express or AGP slot to release the card, grasp it near the mounting bracket (avoid touching any components or the SLI connector on the top of an nVidia card), and gently pull the card up and out of the slot. You might need to rock the card forward and back—not side to side—to release it.

2 Touch your case chassis again before removing your new videocard from its packaging. Holding the card by its top edge, align the card's edge connector with the expansion slot and push it into place. Examine the connection to make sure the card is in the slot, and then push the board down into the slot. Expect some resistance, but don't force the card. If it's aligned properly, it should seat itself fairly easily. Replace the retaining screw, making sure the card doesn't twist in the slot as you tighten it. Attach the monitor cable and the supplemental power cable, if your new card has one.

3 Flip the switch on the power supply and turn on the PC. When Windows has finished launching, locate the new device driver you downloaded at the beginning of this process, double-click the file, and follow the installation instructions. Reboot your PC when the installation is complete. When your PC has finished booting, right-click an empty spot on your Desktop, choose Properties, and then click the Settings tab to configure your desktop resolution. If you're using a CRT, click the Advanced button and then the Monitor tab. Crank up the refresh rate to at least 72Hz to eliminate headache-inducing flicker.

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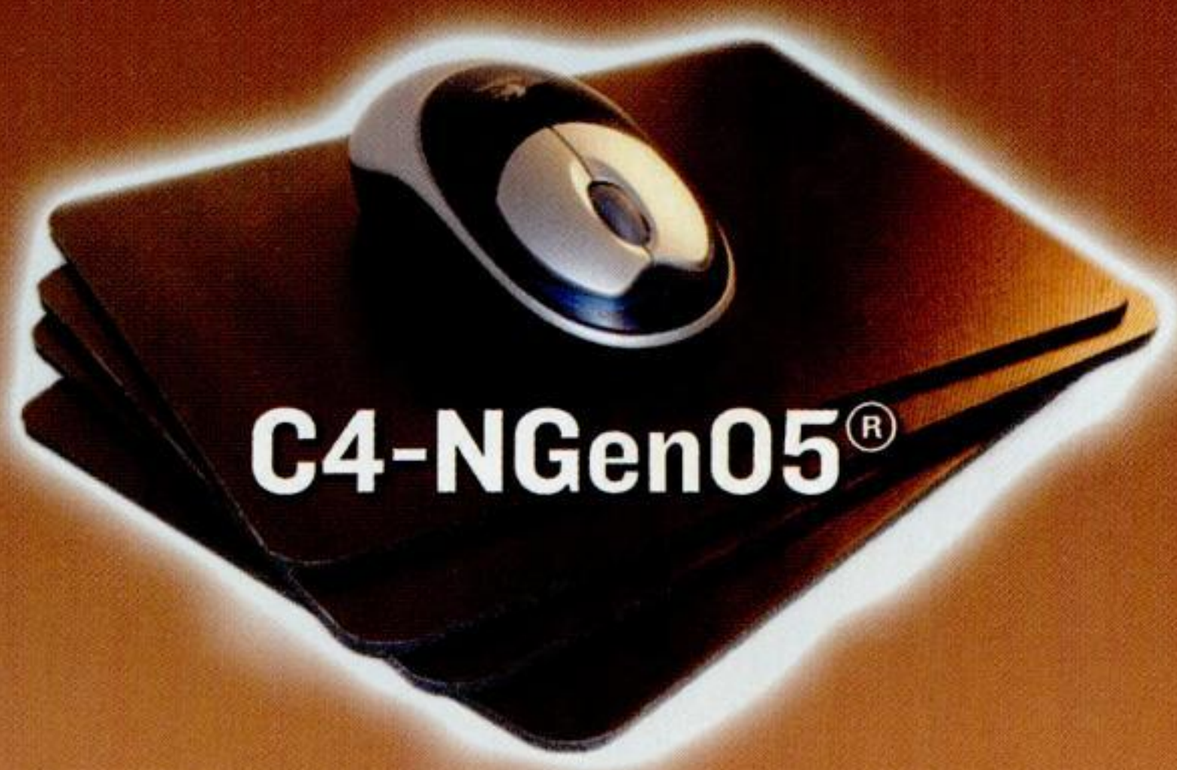
Maximum PC Magazine, Dream Machine 2004, Sep 04 Issue



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Upgrade to SLI

If you're installing a second, matching videocard (one that's based on the same GPU and—until nVidia changes things with its driver release 80—from the same manufacturer) to your SLI-compatible motherboard, the first step is to check the SLI settings in your motherboard's BIOS. These will vary by motherboard, but yours should be obvious enough to figure out.

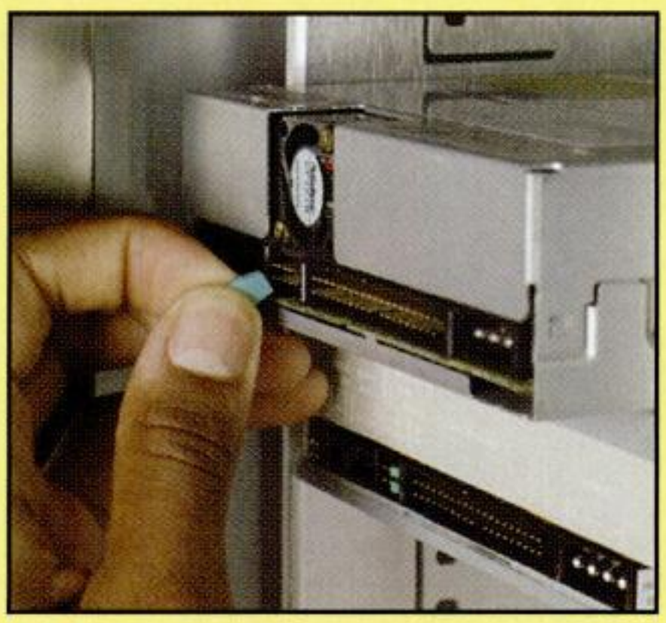
1 Most motherboards must also be physically reconfigured for SLI, and there are a variety of ways to do this. Some motherboards, like the Asus A8N-SLI Deluxe, have you re-orient a paddle-like circuit board. Other mobos use jumper blocks, and still others accomplish the task entirely in software.

2 The next step is to plug in your second graphics card. If your cards require dedicated power-supply connections, it's critical that you use a separate power cable for each card—don't use a Y cable.

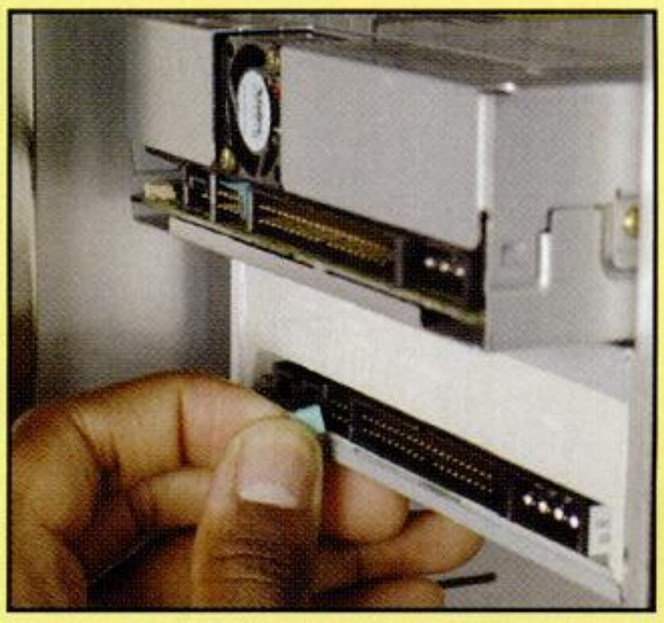
3 Now, connect the two videocards using the SLI bridge connector that came with your motherboard. After you've downloaded and installed nVidia's latest Forceware drivers, open your Display Properties window, click the Advanced tab, and then the nVidia tab. Click the SLI multi-GPU tab in the pop-out menu and place a checkmark next to the item that reads "Enable SLI multi-GPU."

Upgrade Your Optical Drive

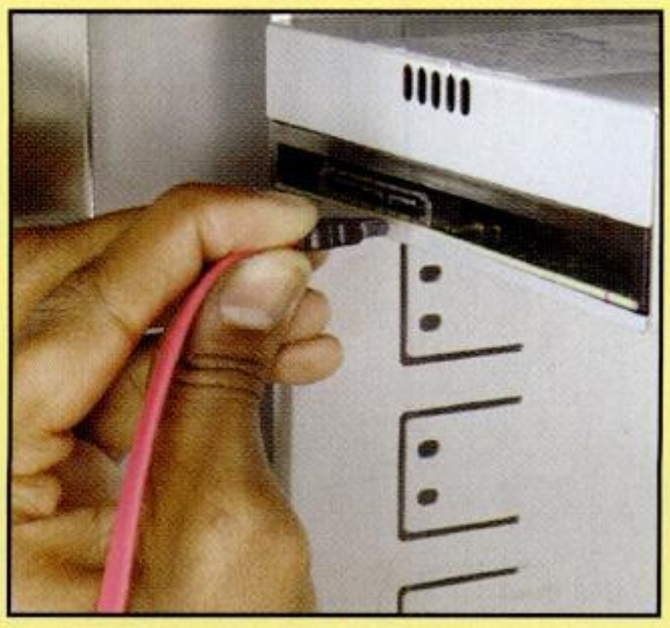
Whether you're sticking with traditional Parallel ATA drives or moving to an all-SATA configuration, installing a new optical drive is just like installing a new hard drive—only easier! But that doesn't mean you can be careless, or that you should whiz through the process; for example, you'll want to screw the drive firmly into both sides of the case using all four screws. This will significantly reduce the amount of rattle and hum that high-speed optical drives generate.



1 You'll recall that each Parallel ATA device must be configured as either the master or the slave; but in an ideal world, your optical drive will have a channel all to itself so it doesn't have to share bandwidth. We set up this drive as the master, using jumpers on the back of the device. You'll find a jumper diagram for your drive either in its documentation or on a label on the drive itself.



2 If your new Parallel ATA optical drive must share a channel with a hard drive or another optical drive, configure one device as master and the other as slave. Because some operating systems have difficulty booting from slave devices, your hard drive should be set up as master and your optical drive as slave. Now you can move on to installing the drive and connecting its data and power cables.



3 If your new optical drive is a Serial ATA model, you won't have to fool with all this master/slave nonsense: Just pop in the drive (remember to use all four screws and tighten them firmly). Now connect the SATA cable to the SATA port on your mobo or expansion card and plug in either the legacy four-pin power connector or the slimmer, extra-fancy SATA power cable—but not both, obviously.

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Disaster Control

The best way to deal with upgrading horrors is to prevent them

Although new hardware appears all the time, and new standards have their own installation routines and quirks, there remain a handful of simple upgrading maxims that apply to any upgrading scenario. We inherited these pearls of wisdom from our grandfathers and grandmothers, and now we pass them along to you.

ALWAYS ground yourself before touching any components inside your PC. Simply touch the metal on the side of your PC's case when it's off but still plugged in. Wearing an anti-static wrist strap is even better, but these aren't of much use if they're not attached to something that's grounded; plus, they itch.

ALWAYS read all the directions before you begin your upgrading project. Documentation is notoriously poor, so you might end up completing a step only to find that the directions warn you *after* the fact not to epoxy your hand to the case.

ALWAYS write down your components' model and serial numbers before installing them. You'll probably never need them if you do, but we can almost guarantee that you will need them if you don't.

NEVER close your case before the first boot. We know you're eager to get up and running, but your new rig will need a little shakedown time first. Before you close the case, make sure your upgraded rig is stable. You should also go through the Device Manager to make sure there aren't any yellow exclamation marks next to any components.

ALWAYS install your drivers in the correct order. This shouldn't be necessary, but it is. When performing a fresh install of Windows XP, start with the OS, move on to Service Pack 2 (if it wasn't slipstreamed with the OS install), drop in your mobo's chipset drivers, follow that with DirectX, and then your videocard drivers. Finally, hoof it to **www.windowsupdate.com** to download the latest critical updates.

NEVER reuse thermal paste. Wipe off the old stuff with 99 percent isopropyl alcohol and lay on a fresh supply. **MPC**

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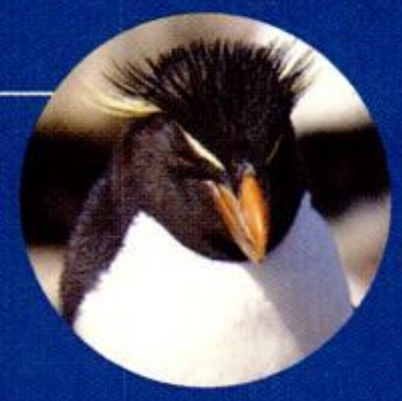


Chill Out with water cooling

Serious overclocking requires serious cooling. *Maximum PC* dips its toes into three do-it-yourself water-cooling kits that promise to help you squeeze every last drop of performance from your rig

Let's face it—today's heatsink-and-fan combos just don't cut it for major overclocking. They're either too inefficient to maintain a stable temperature, or they're loud enough to drown out the footfalls of approaching Combine soldiers. You need water cooling, and you can get it one of three ways; You can buy an expensive, preconfigured water-cooled PC; you can purchase a case with a built-in water-cooling system; or you can bag yourself a water-cooling kit and install it in the PC you already own. This last approach is the most practical for most folks, but we don't blame you for being apprehensive about accepting on faith that whatever kit you pick will be rugged, reliable, and worth the effort of installation.

And so this month, *Maximum PC* puts its own PCs at risk, so you don't have to. We'll explain how water cooling works, tell you what you need to install a water-cooling system, and walk you through the results of our extensive hands-on evaluation of three kits. If, after you've read the reviews, you decide to take the plunge, we'll share 10 pitfalls we encountered while building these kits—and offer tips on how you can avoid them. With that, we invite you to dive in: The water's fine.

WATER COOLING IN ACTION

Water cooling is such an easy concept that even dogs get it: Run through the sprinkler on a hot day and you'll cool off. Of course, you can't just hose down your CPU and call it a day. Water-cooling kits operate by pumping water through a closed circuit, wicking away heat from your PC's vital components. Here's how each part in a typical water-cooling kit contributes to that objective.

WATER PUMP The water pump is the engine that pushes water around the circuit. The pump sucks water in through one port and pushes it out another, by way of a motor that spins an impeller. Two primary characteristics differentiate water pumps: The amount of water they can move through the system, and the amount of noise they create in the process. The higher the pump's flow rate and the wider the diameter of tubing the system uses, the cooler your system will be. You want a pump that moves the most amount of water while producing the least amount of sound.

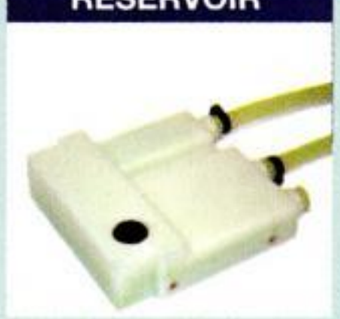
WATER PUMP

WATER BLOCK A water block is a copper heatsink that mounts directly to your CPU, GPU, chipset, or other heat-generating component. Water enters the block through an inlet port, and the water is then pushed through small channels that curve around inside the block. This design allows the water to absorb as much heat as possible before exiting the water block via an outlet port.

WATER BLOCK

RESERVOIR Most cooling kits include a reservoir, which is just a small holding tank of distilled water (usually mixed with additives that promote heat transfer and prevent corrosion). The reservoir is always placed at the highest point in the cooling circuit, above the pump and water blocks, so gravity and pressure can help its contents flow down into the circuit, typically directly into the water pump's inlet port.

RESERVOIR



RADIATOR When the water gets to the radiator, it's plenty warm and needs to be cooled. The radiator brings down the temperature by sending the water though a snaking series of interconnected tubes within its fins (the flat surfaces that spike out of the unit). The radiator's fins increase the surface area over which heat is distributed, which helps cool the water inside the tubes more quickly. Meanwhile, a large, high-volume fan, blows cool air through the radiator, wicking away the heat collected in the pipes.

RADIATOR

Continued on page 86

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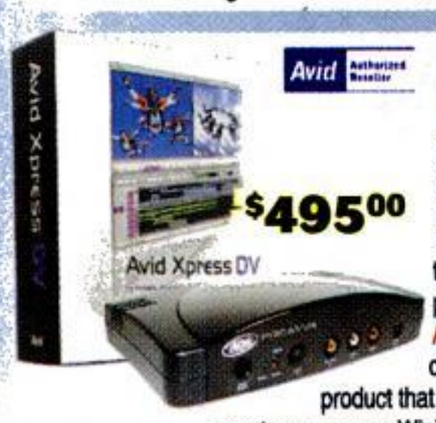

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OUR TESTING METHODS

Each kit was installed in a Cooler Master Cavalier ATX mid-tower case, using an Abit AA8XE Fatal1ty motherboard and an Intel LGA775 3.6GHz P4 processor. (All kits tested work with both Intel and AMD CPU models.) We evaluated each kit based on four criteria:

Cooling Performance

Once the kit was installed, we measured the CPU temp at idle. We next ran *CPU Burn-in* (**http://users.bigpond.net.au/cpuburn/**) for one hour with a 100-percent load on the CPU, and then measured its temperature at the end of the cycle. To measure the effectiveness of water versus air cooling, we compared the water-cooling temperatures with those from a stock Intel heatsink/fan (HSF) and, alternately, a high-velocity aftermarket fan from Thermaltake—the Jungle 512.

Ease of Installation

This is a necessarily subjective measurement, but it's a crucial one nonetheless. We evaluated each kit for the quality of the manufacturer's documentation, how well the kit's parts were labeled, and how easy it was to install the sucka. This could very well be the deciding factor when choosing among kits that perform similarly.

Overclocking Potential

Because water cooling facilitates lower overall temperatures than air cooling, it's often used by overclockers to reach astronomic clock speeds. We tested each kit for its overclocking ability and scored some impressive results, but we did encounter some limitations related to the CPU and motherboard we used. In other words, your mileage may vary.

Noise Level

One of the big advantages of water—versus air—cooling is that it doesn't require as many notoriously noisy fans. Still, most kits include a fan to draw air over the radiator, and not all of the kits include enough water blocks for all the components you'll want to cool. Once we installed a kit, we measured its sound output from 18 inches away using a decibel meter.

SWIFTECH H2O-120

The Swiftech H2O-120 kit stands out in this roundup because of its modular design: You can purchase a CPU-only configuration today, and then buy additional water blocks and radiators to expand the system according to your needs. The kit we tested included water blocks for the CPU and GPU, a 120mm radiator with a fan, a coolant reservoir that mounts in a 5.25-inch bay, and a 12V pump. The kit uses 1/2-inch tubing with "cool-sleeve" coils to prevent the formation of kinks that would impede water flow, and it uses green UV-reactive (aka "glow-in-the-dark") coolant that's intended to be mixed with distilled water. One very nice touch is that the 120mm fan/radiator assembly can be mounted on a wide range of exhaust-fan mounts, so it will work with just about any ATX enclosure.

The Swiftech unit is fabulous hardware that performs very well, though installing it is a bit of an adventure that requires extreme levels of patience and diligence. And the problem stems from the very modularity we praise the kit for: Rather than provide a step-by-step walk-through for the particular kit you've purchased, the H2O-120 comes with installation instructions for the *entire catalog* of Swiftech parts.

As much as we appreciate that Swiftech provides a printed manual—not all the vendors in this roundup do—we *don't* appreciate having to wade through 41 pages searching for the nuggets of hard information we need to install something.

The Swiftech kit warns you—perhaps a little too late—that the H2O-120 is "for expert users," and they're not kidding. Installation of the kit requires a lot of patience and care, making the Swiftech kit easy to install for those that know what they're doing, but intimidating to the average Joe who is looking to install his first kit. In our opinion, a simple overhaul of the manual would have made this a fine kit for all parties.

The H20-120 uses "cool-sleeve" coils throughout its interior and exterior to prevent the tubing from kinking; kinked tubes will impede water flow and severely reduce cooling efficiency.

The internal reservoir is made from molded plastic and conveniently mounts in a 5.25-inch bay. To add more water, you just pull it out, unscrew the cap, and fill 'er up.

TEST RESULTS

Cooling performance

The H20-120 performed quite well, registering the second-lowest temperature delta from idle to full load. Under full load it was only hotter than the stock HSF at idle by four degrees Centigrade.

Ease of installation

This kit wasn't that hard to install, but the 41-page manual would be very intimidating to water-cooling newcomers. All the information you need is in there, but you have to hunt to find it.

Overclocking

This was the best overclocker in the bunch, allowing us to ratchet up our 3.6GHz P4 all the way to 4.12GHz. Not bad.

Noise output

Because the 120mm fan mounts on the outside of the case, noise output increased from the stock HSF by four decibels, but we think that's an acceptable trade-off for the overclocking prowess.

MAXIMUM PC VERDICT 8

$260, www.swiftnets.com

The Swiftech VGA water block prior to installation.

Continued on page 88

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CORSAIR COOL

This is a CPU-only cooling kit; as such, it includes just a single water block—VGA and other coolers are not available. The kit also includes a reservoir that can be mounted in a 5.25-inch bay, a 12V pump that affixes to the bottom of your case via an adhesive pad, and a fan and 120mm radiator. The distilled water and UV-reactive coolant are carried via 3/8-inch tubing.

The Cool kit afforded us the second-easiest installation of the roundup, thanks to easy-to-understand instructions and large, full-color photos. A few disappointingly vague instructions are what kept it from being the easiest kit to install: In one example, the manual was missing a crucial detail regarding the orientation of the water-block retention plate on our LGA775 formfactor processor. When we fact-checked this with Corsair, we were told the manual has since been updated to reflect this important change (fat lot of good that did *us*).

Corsair includes Swiftech's "Radbox" radiator mounting system, which lets you affix the radiator to practically any size fan mount. Even if your case has only a wee 80mm exhaust fan, you'll be OK—simply ditch the fan and use the mounting holes to install the radiator.

In our tests, the Cool system performed quite well, delivering the second-lowest overall temperature at idle, and the lowest temperature at full load. Amazingly, the Corsair kit's temperature at full load was lower than the stock heatsink/fan at idle (when your PC is doing *nothing).*

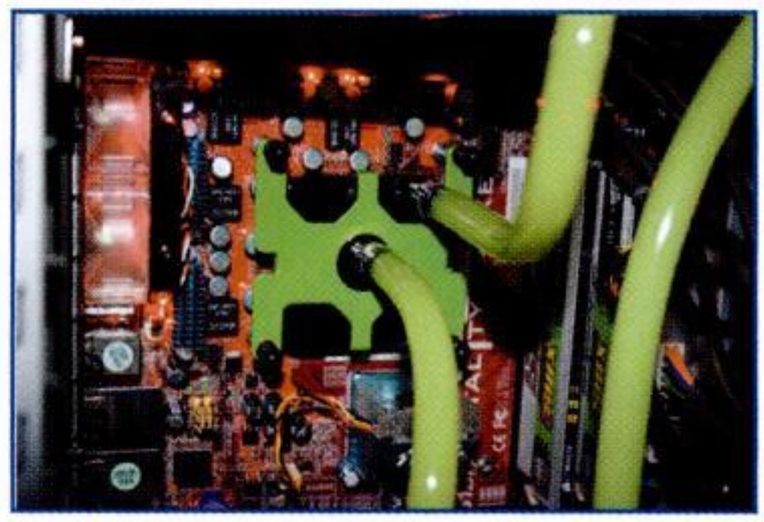
TEST RESULTS

Cooling performance

The Cool kit is aptly named: It exhibited the lowest temperature delta from idle to 100-percent load of any kit in the test. Its idle temp of 38° C was four degrees lower than the stock Intel cooler, and its full-load temp of 44° C was the lowest in the roundup.

Ease of installation

This kit was the second-easiest to install thanks to thoughtful, step-by-step instructions. Still, there were a few omissions that caused us some serious headaches. And because the documentation is provided only in PDF format, you'll need to either print it out beforehand or follow along on a laptop.



The Cool kit certainly looks cool, and it acts cool, too, pumping UV-reactive coolant into an all-black copper water block.

Overclocking

We scored just a 400MHz overclock—that's only 40MHz higher than we achieved with the stock cooler. This makes the Cool kit the least-impressive of the bunch in this respect, which is odd given its stellar temps.

Noise output

Because this kit requires a 120mm fan to be mounted *outside* the case, it was four decibels louder than stock.

MAXIMUM PC VERDICT 8

$200, www.corsair.com

COOLER MASTER AQUAGATE MINI

The Aquagate Mini eschews the pump/reservoir/radiator/water-block design convention in favor of an incredibly simple and compact two-piece cooling unit. There's the typical radiator/fan assembly, but the water pump and reservoir are all integrated right on top of the water block. Thus, the Aquagate Mini significantly reduces case clutter and tubing hassles.

The tubing is factory-clamped and liquid is included, so you never need to fill a reservoir or worry about leakage or mishaps. It's also the only kit here that is meant to be installed entirely *inside* the case, which significantly reduces noise levels. Setting the speed-adjustable fan to its lowest setting renders this kit astonishingly quiet.

Installation was the easiest in the roundup, partly because the kit doesn't require you to route any tubing or fill reservoirs, but also because Cooler Master has streamlined the CPU-mounting process into just four small steps. The kit provides all the tools you need to tighten everything down. Mounting the CPU block took about 10 minutes, and bolting the fan to the side of the case took another five minutes—awesome compared with the two-plus hours required to install each of the other kits in this roundup.

The only drawback is that there's no way to add a VGA or chipset cooler to this system down the road. But as far as CPU-only kits go, the Aquagate Mini is our hands-down favorite.

TEST RESULTS

Cooling performance

The Aquagate Mini posted solid scores that were very similar to it's competitors'. The CPU got up to 60° C with the fan turned all the way down, but the rig was totally silent and cooler than with the stock HSF.

Ease of installation

Installation was a snap—by far the easiest in the roundup. Cooler Master uses an innovative screw-down mounting method for LGA775 formfactor processors that requires just four bolts, which you secure with a tool that's provided in the kit. With that painless task out of the way, we installed the fan with four screws and were finished.

Overclocking

The Mini registered the second-highest overclock in the test: 4.08GHz.

The Aquagate Mini uses a novel design that integrates the water block with the pump and reservoir. There's no reservoir to fill, no tubing to route, and no pumps to bleed.

Noise output

Because it has an adjustable fan, we tested the kit with the fan set on low and then on high. It's totally silent on low, but quite loud when turned up all the way. It's also the only kit that mounts entirely *inside* the case, which goes a long way toward reducing noise.

MAXIMUM PC VERDICT 9

$100, www.coolermaster.com

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Water You Waiting For?

Carefully consider the pros and cons of water cooling before you take the plunge

The Groovy Pros

As our testing shows, water cooling has definite tangible benefits over traditional air cooling. CPU temperatures dropped dramatically with the addition of a water-cooling kit, and even after an hour running under full load, they never rose far beyond the idle temperature of the stock air-cooled setup. Water cooling is so efficient that CPU temperatures will never fluctuate as much as with air cooling. Thus, water cooling is also good for overclocking; if you're already ambitiously overclocking your machine by virtue of a monster heatsink/fan apparatus, water cooling is a worthy alternative.

Water-cooling kits can also reduce overall system noise—at least in some instances. In our tests, two of the three kits used an external radiator, and although the 120mm fans included with these kits have a fairly slow rotation rate, it's a zero-sum game when your interior 120mm fan is replaced with an exterior fan of the same size and dimensions. Noise levels for the internally installed kits, however (including the Aquagate Mini, which also has an adjustable-speed fan), were incredibly low.

Finally, adding a kit such as one of these to your system *can* be a lot of fun—especially if you're patient—and you'll gain an appreciable performance boost. If you're like us and you dig strippin' your PC down to its naked mobo and rebuilding it with fancy, never-before-tried technology (to you, at least), you'll swell with pride as your PC comes back to life with water coursing through its veins.

The Unsettling Cons

Unfortunately, water cooling isn't *all* fun and games; there are a few downsides when compared with conventional air cooling. The first is price: The cheapest kit in the roundup costs more than twice what you'd pay for a simple, aftermarket heatsink/fan combo. Some of the more lavish kits cost upwards of $300—a pretty penny indeed.

Second, some of these kits are much harder to install than they need to be, thanks to incomplete or incompetently written instruction manuals. Several of the kits we tested were accompanied by written directions containing egregious omissions, which is incredibly maddening: When your PC's ass is on the line, the last thing you want to experience is doubt or uncertainty.

You should also ask yourself this question before navigating these waters: Do you really need to water-cool your PC? If you're not overclocking and your system is stable, the answer is probably no; then again, do you really *need* 4GB of RAM? Or a window in the side of your case? Or lights all over its interior? Probably not, but it's fun to mod your PC and make it different—especially when the mod enhances your PC's performance.

Here's the bottom line: These water-cooling kits can be a pain in the butt to install; they require careful, methodical planning and a full system tear-down; but they're worth the effort if—like us—you like getting your hands dirty inside your PC every once in a while.

Water-Cooling Kits Compared

KIT	Available water blocks	CPU temp at idle*	CPU temp at 100-percent load*	Overclock achieved with 3.6GHz CPU (in GHz)	Noise level (in decibels)	Price
Corsair Cool	CPU	38	**44**	4.0	69	$200
Swiftech H20-120	CPU, VGA, chipset	**36**	46	**4.12**	69	$260
Cooler Master Aquagate Mini 120	CPU	37	47	4.08	**64** (67 with fan on high)	$100
Stock HSF	N/A	42	61	3.96	65	N/A
Thermaltake Jungle 512 fan	N/A	43	64	3.96	68	$30

*** All temperatures are Celsius. Best scores are bolded.**

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10 Water-Cooling Pitfalls—and How to Avoid Them

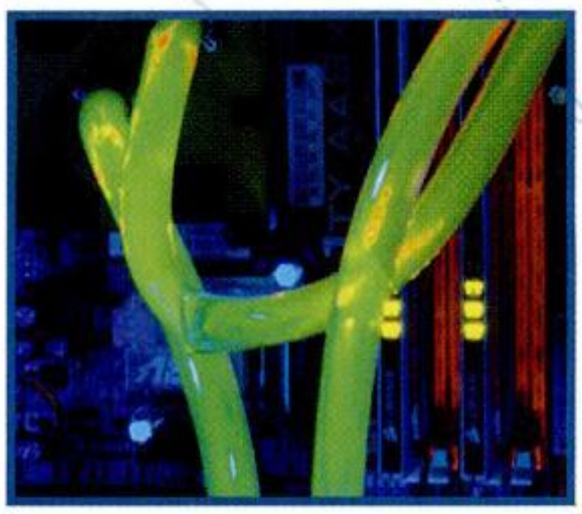
We endured 10 "D'oh!" moments so you wouldn't have to

1. RTFM (read the freakin' manual)

How we learned this: The instructions for these kits aren't printed out just for your amusement—they are absolutely crucial to the kit's successful implementation. Building one of these kits is equivalent to designing a circuit, and every portion from the radiator to the pump to the water block must be correctly installed or there's a good chance the kit will either not function at all or won't function at its full capacity. There were numerous times during testing where we experienced issues with certain kits, and we always traced the problem back to a missed step, an incomplete step (typically due to a murky instruction) or something similar. The point is clear: Follow the instructions as if your PC's life depended on it!

2. Don't Get Kinky

How we learned this: We didn't experience any *severe* kinking problems with any of these kits, but we came to the conclusion that the "cool-sleeves" tubing offered with the Corsair and Swiftech kits do an excellent job of preventing circulation-plugging kinks anywhere in the lines.



A gnarly kink showed up on the tube coming out of the CPU water block. This forced us to remove and re-cut the tubing.

3. Read Ahead

How we learned this: When installing the Corsair kit, we performed each step in the process as we read it. One of these steps read "remove one of the [adhesive] pad's protective sheets…" so we did. And then the very next step in the manual said, "do not peel off the protective sticker on the adhesive surface…." Whoops.

4. Make a Plan

How we learned this: We built each of these kits with the water traveling from the radiator to the CPU water block, and had no problems at all; but it would be interesting to experiment with different configurations, such as connecting the water pump to the CPU, to see which works best.

5. Have a Lifeline

How we learned this: One of the kits wasn't booting, and we were *convinced* we had installed it correctly. We finally asked for help from a co-worker, who walked us through the process from step one all over again. As it turns out, we just needed to look at the directions a bit more closely: For one step, we had been following the directions for installing the kit on what the manual had labeled a "P4." When we turned to the next page, we found a set of very different directions for installing the kit on an "LGA775" CPU, which is also a P4. The previous directions were for a Socket 478 P4.

6. Call Tech Support

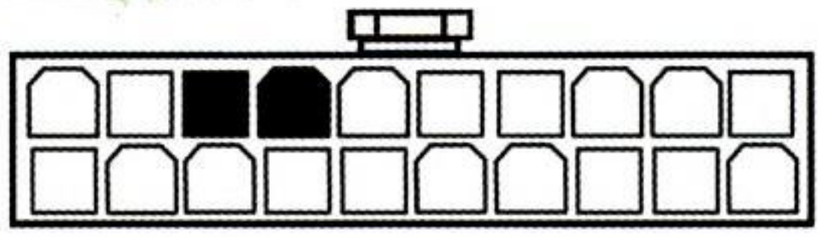
How we learned this: We were seeing unusually high temperature readings with the Corsair kit, so we contacted the company and asked about it. As it turns out, we had the water block installed correctly, but the retention plate was upside-down. In our defense, the plate looks perfectly symmetrical at a glance, and there was nothing in the manual explaining that the plate *had* to be mounted a certain way. We would never have figured this out on our own, but a quick call to tech support fixed the problem quickly and effectively.

7. Measure Twice, Cut Once

How we learned this: One of the kits requires a few inches of slack in the line to the reservoir, so we cut it long. This was perfect when the reservoir was pulled out, but when we pushed it back into the case, the line kinked and we had to re-cut it. Cutting the tubing too short would have been an even bigger hassle.

8. Do a Dry Run

How we learned this: None of the kits recommend doing a dry run, but we think it's a good idea. We recommend assembling the entire kit and running it until the circuit is full of water before you power up your PC. This is a good way to test for leaks! Simply attach just the pump to the power supply, short-out pins 13 and 14 with a paper clip, and turn it on. Water should begin pumping through the system immediately. Once it's full, and no leaks are found, connect the PSU to the motherboard and fire it up.



To run your cooling circuit without endangering any components, hook it up to the PSU, short these pins, and then turn on the sucker.

9. Watch for Capacitors

How we learned this: Even though there's a "no build" zone around the processor area, the water blocks are so large they can nudge up against a capacitor and still feel solidly mounted to the CPU. This has happend to us with other kits, and we couldn't figure out why the CPU was running at 100° C. We finally removed the block, wiggled it a bit to make sure it was making good contact with the CPU heat spreader, and reattached it. Problem solved.

See all those capacitors sitting directly below the water block? If just one of them is making contact with the block, temperatures could rise more than 20°.

10. Mount the Pump Last

How we learned this: Corsair's instructions taught us this trick by telling us to not mount the pump until the very last stage of installation. It's very difficult to bleed the lines if you can't vertically orient the pump's ports. MPC

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how2 IMPROVING YOUR PC EXPERIENCE, ONE STEP AT A TIME

chill out with air cooling

Maximum PC *schools you on the basics of air cooling, then cranks up the heat on 10 of the most audacious CPU heatsink/fan combos in town*

Your CPU is running so hot you've put it on suicide watch, and the fan cooling it is louder than the sucking noise made by Adam Sandler's latest movie—clearly, it's time for an intervention. Sure, there's always water cooling—which we still recommend for overclockers—but that requires delicate surgery with tubing, reservoirs, and pumps, and of course there's also all that water circulating inside your PC. And so air-cooling remains the easiest and most convenient way to manage your CPU's temperature.

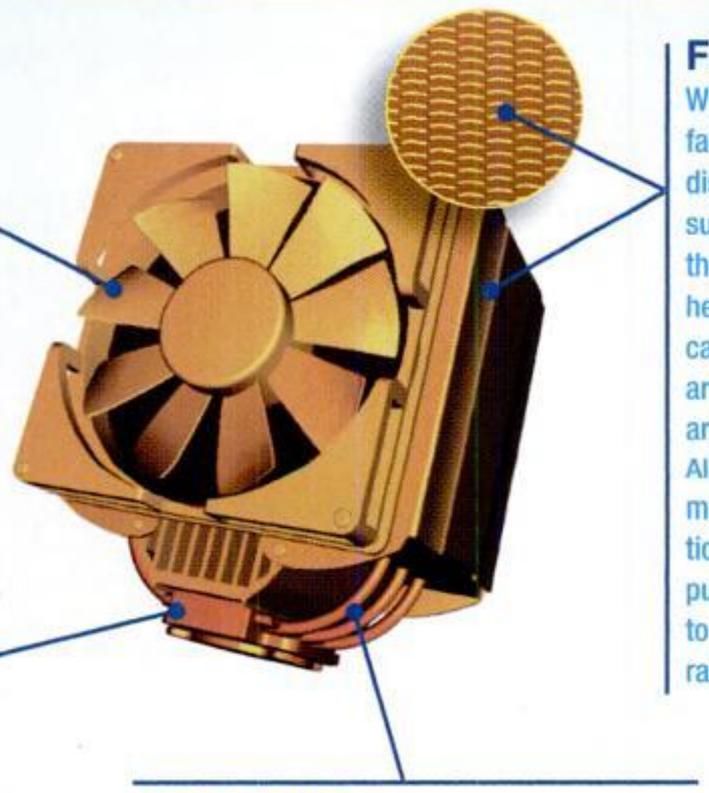
We rounded up 10 of the brawniest heatsink/fan combos we could find and put them through their paces in the Lab on both AMD and Intel platforms, testing performance, ease of installation, and noise level. Thanks to universal mounting mechanisms, all of these heatsinks work on every AMD and Intel CPU from the last three years. So unless you're still tinkering with a real antique, you're sure to find a heatsink here that could put a big chill in your case right now.

HOW WE TEST

We installed each heatsink on two platforms: an AMD system using an Asus A8N SLI Deluxe with an FX-55 CPU, and an Intel setup using an Abit AA8 with a Prescott 3.6GHz CPU. Temperature readings (reported in Celsius) were taken using the thermal diodes on the boards, as obtained from *Asus AI* utility and Abit's *uGuru* utility, respectively. To measure noise levels, we took each motherboard into the quietest room in our office, lowered it into a foam chamber (with nothing but the CPU fan attached), and took readings with a Radio Shack decibel meter from a distance of 24 inches. Finally, we measured temps under full load. To achieve 100 percent CPU load, we ran *CPU Burn-in* for one hour.

BY JOSH NOREM AND MARK BEHNKEN

GETTING TO KNOW YOUR CPU COOLER



FAN

A fan increases a heatsink's effectiveness by constantly replacing the warm air rising from its radiator fins with fresh, cool air. Ideally, the warm air is then evacuated out of the PC's case. Fan performance is measured by the volume of air it's capable of moving, measured in cubic feet per minute (CFM). An 80mm fan typically moves 25 to 35CFM; a 120mm fan can move up to 75CFM or more.

BASE PLATE

This is ground zero—where the heatsink makes direct contact with the heat spreader resting on top of the CPU core. Copper is the most effective base-plate material because of its high conductivity. Whatever material it's made from, the base plate needs to be as smooth as possible in order to transfer heat from the CPU's heat spreader, so most are polished to a mirror-like finish. Still, if you examine even a highly polished base plate under a microscope, you'll discover pits and surface flaws that reduce the heatsink's efficiency. Fill in these gaps with thermal paste and you'll create a better bond between the heatsink and the base plate.

FINS

When cool air blows over the surface of a warm heatsink, the heat dissipates into the air. The more surface area a heatsink possesses, the better it will be at dissipating heat. Much like the radiator in your car, a CPU heatsink uses a dense array of fins to maximize its surface area while minimizing its footprint. Aluminum is the most common material used for heatsink fabrication, because it's cheap and can be pummeled into wafer-thin sheets to provide lots of surface area for radiating heat.

HEAT PIPE

A heat pipe is a sealed conduit with liquid inside, and its job is to wick heat away from the CPU core and up into the fins of the heatsink. As the heat transfers from the CPU core to the liquid, the liquid evaporates and travels up the heat pipe. As soon as the vapor has moved far enough away from the heat source, it condenses back into liquid and drains down to the base of the heat pipe. This process of evaporation and condensation is called a "phase change," and the process happens constantly as long as the PC is running.

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GIGABYTE G-POWER BL

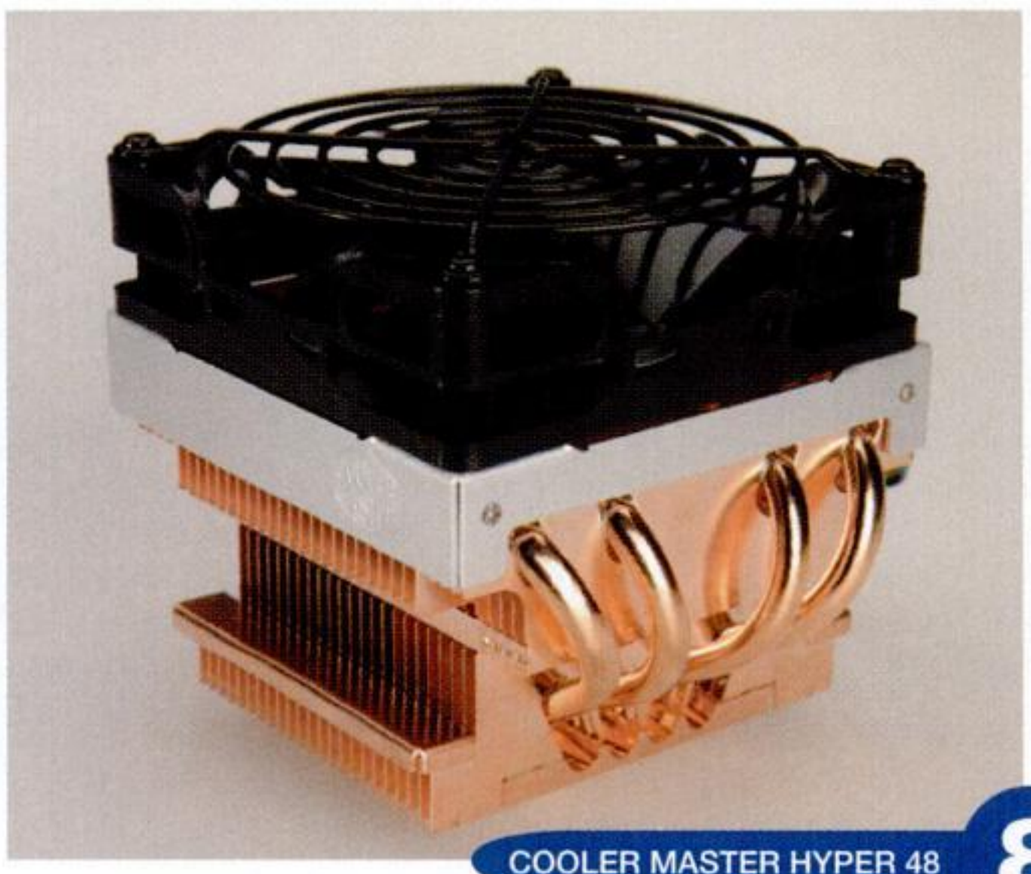
Gigabyte's G-Power cooler sports a unique "overhang" design that strikes an impressive balance of overall performance and sound output. Its copper base plate (which is nickel-coated to prevent oxidation) sends heat to four heat pipes, which carry the warm stuff up into an array of aluminum fins. A speed-adjustable 110mm fan with blue LEDs blows air down through the fins and out in all directions over the CPU core. This clever design helps cool memory, capacitors, and other nearby components, as well as the CPU.

Installation was straightforward and extremely easy. The G-Power includes a tiny step-down cable that attaches to the three-pin power lead. When connected, it lowers fan speed from 2,000rpm to 1,700rpm. The G-Power was impressive, but the CPUs we tested it with ran just a smidge hotter than they did with the coolest coolers in the bunch.

	AMD idle (C)	AMD load (C)	Intel idle (C)	Intel load (C)	Sound output (dBA)
G-Power (fan high/low)	**33/34**	**46/48**	**38/39**	**52/54**	**66/63**
Stock cooler	36	52	42	57	67

GIGABYTE G-POWER BL **9**

$40, www.giga-byte.com



COOLER MASTER HYPER 48 **8**

$40, www.coolermaster.com

COOLER MASTER HYPER 48

This little guy stands out from the competition by being a bit smaller than most and fabricated entirely of copper. It has four copper heat pipes, copper fins, and a 92mm fan. The fan features pulse-width modulation (PWM), which varies speed according to your CPU's temperature (although this feature is supported only on LGA775 boards as of press time). When the CPU core reaches a designated temperature (set in the BIOS), the fan spins up to 3,200rpm; but we never reached that level in our testing, so the fan ran at a constant—and quiet—1,440rpm.

This product was one of the easiest to install of the entire roundup (in fact, all the Cooler Master units were a cinch). In our tests, the Hyper 48 performed better than the stock coolers across the board, but it didn't reduce temperatures as efficiently as the other coolers in this roundup.

	AMD idle (C)	AMD load (C)	Intel idle (C)	Intel load (C)	Sound output (dBA)
Hyper 48	**33**	**48**	**37**	**54**	**63**
Stock cooler	36	52	42	57	67

THERMALTAKE BIG TYPHOON

This stunning heatsink sports the typical copper base, six heat pipes, and a gaggle of aluminum fins that hang over the processor zone. A 120mm fan—the biggest in this roundup—sits atop this dense apparatus, blowing down air to carry heat radiated from the fins and cooling the area around the CPU socket. The fan provides arctic-quality cooling despite the fact that it spins at a near-silent 1,300rpm.

Installation was easier than average—much easier than with other Thermaltake products we've reviewed recently. The Typhoon quietly administered exceptional cooling to our test CPUs: The numbers it posted were among the best in the roundup. The only knock against this cooler is that when it's installed in a case, the case door is so close to the fan that it starves it of air.

	AMD idle (C)	AMD load (C)	Intel idle (C)	Intel load (C)	Sound output (dBA)
Big Typhoon	**31**	**44**	**36**	**51**	**63**
Stock cooler	36	52	42	57	67

THERMALTAKE BIG TYPHOON **8**

$50, www.thermaltake.com

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www.maximumpc.com

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COOLER MASTER HYPER 6+

The towering Hyper 6+ weighs in at almost two pounds. It sports a hulking copper base, six copper heat pipes, a field of saw-tooth aluminum fins, and a 100mm fan. You can even secure a second 100mm fan, but we think it would be overkill.

As with all the Cooler Master heatsinks we reviewed, installation was a breeze. And once the Hyper 6+ was up and running, we were astonished by the low temperatures it delivered, considering its quietude: The fan was nearly silent while spinning at 1,800rpm. The Hyper 6+ supports PWM, too, but because the processor never got very hot, the fan modulation never kicked in.

Despite its bulk, we experienced no clearance issues on either test platform. From installation to performance to sound output, the Hyper 6+ kicks ass in every way possible.

	AMD idle (C)	AMD load (C)	Intel idle (C)	Intel load (C)	Sound output (dBA)
Hyper 6+	**33**	**44**	**38**	**52**	**62**
Stock cooler	36	52	42	57	67

COOLER MASTER HYPER 6+ **10**

$55, www.coolermaster.com

MAXIMUMPC KICKASS

THERMALRIGHT XP-120

The XP-120 covers a huge surface area with five heat pipes and densely packed aluminum fins. It's great for cooling, but it's a mini-bitch to install. The heatsink overhangs the entire region surrounding the CPU, so we had to reach underneath it with a flathead screwdriver to secure it to the included retention module. We also had to temporarily remove the fan on our north bridge chip, and then wedge it back into its slot after we'd set up the XP-120. The next step was to attach little arms (included) to secure a fan (not included—we used an adjustable-speed 120mm Thermaltake) to the heatsink.

The XP-120 is impressive, but its giant wingspan was just too much for our Abit AA8 mobo. If you're considering this solution for your PC, we suggest you whip out a measuring tape first so you can avoid the clearance problems we encountered.

THERMALRIGHT XP-120 **7**

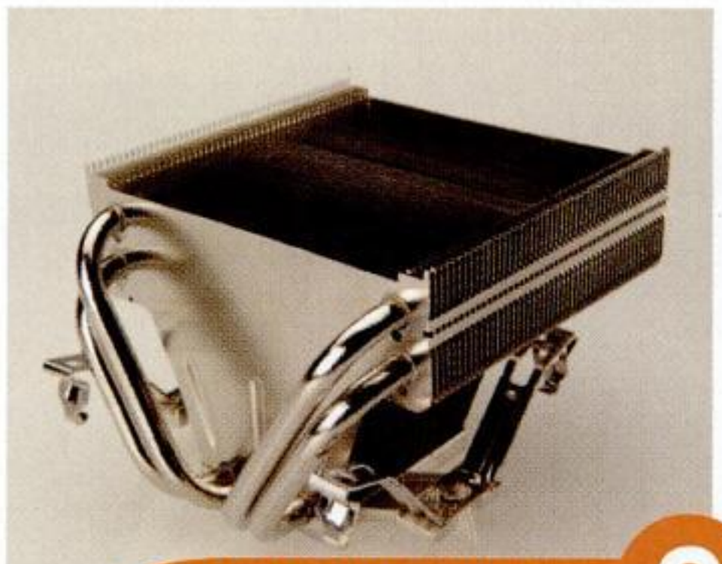
$55 (plus $5 for LGA775 module), www.thermalright.com

	AMD idle (C)	AMD load (C)	Intel idle (C)	Intel load (C)	Sound output (dBA)
XP-120 (fan high/low)	**31/34**	**41/45**	**36/38**	**49/54**	**65/61**
Stock cooler	36	52	42	57	67

THERMALRIGHT XP-90

Baby brother to Thermalright's XP-120, the XP-90 uses the same nickel-plated copper base and aluminum fins, but it's outfitted with one less heat pipe. It's designed to be used with a 92mm fan (not included), so we used one that spun at 2,940rpm. For the record, Thermalright recommends the Panaflo, which pushes 48CFM at 30dBA.

The XP-90's smaller size makes for an easy installation: It's a simple matter of securing two easy-to-attach clips. The heatsink posted scores significantly lower than those we got from the stock coolers. Considering its overall competence and low price (the lowest of this roundup, in fact), we consider this to be a better buy than the XP-120.



THERMALRIGHT XP-90 **9**

$37, www.thermalright.com

	AMD idle (C)	AMD load (C)	Intel idle (C)	Intel load (C)	Sound output (dBA)
XP-90	**33**	**47**	**38**	**55**	**67**
Stock cooler	36	52	42	57	67

ALUMINUM VS. COPPER

Aluminum isn't the best at conducting heat, but it's very inexpensive; and because it's a lightweight material, it can be easily molded into intricate shapes. Copper, on the other hand, is relatively expensive and fairly heavy, though it's an excellent heat conductor.

To provide effective heat radiation at a reasonable cost, most high-performance CPU heatsinks are designed with both aluminum and copper components. Heat pipes fabricated from copper wick heat away from the CPU and into radiator fins made from aluminum. Because aluminum is so easy to mold, it can be folded into intricate arrays that provide a tremendous surface area over which heat can be dissipated.

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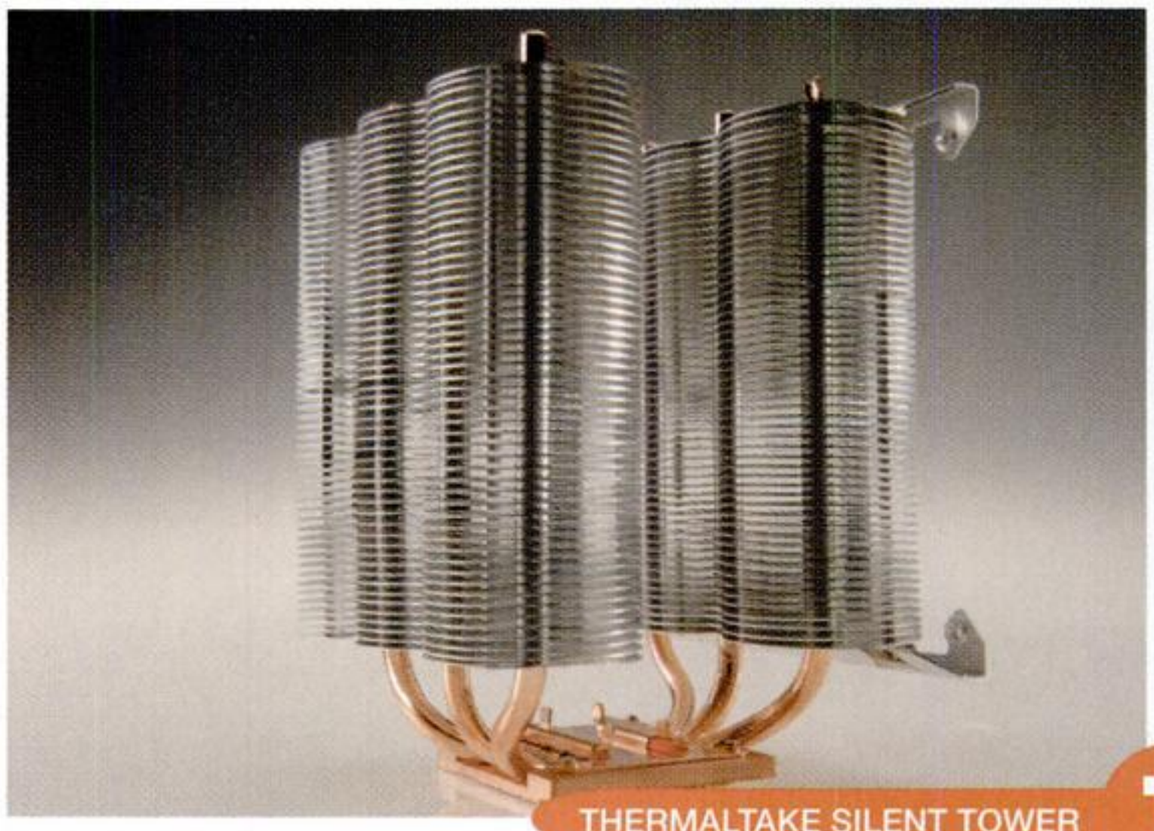
THERMALTAKE SILENT TOWER

This super-sized cooler features a copper base with six heat pipes attached to twin aluminum fin towers, which amounts to some serious CPU cooling. A fan isn't included, but one is absolutely necessary.

The Silent Tower was a relatively easy installation on our AMD mobo, but the fan just barely fit. Aside from that, it proved to be a stunningly cool solution. We managed to get the heatsink installed on our LGA775 system, but we couldn't attach the fan because it hung over the first two memory slots on our Abit board. The bottom line: This cooler offers terrific performance, but it's simply too big for most mobos.

	AMD idle (C)	AMD load (C)	Intel idle (C)	Intel load (C)	Sound output (dBA)
Silent Tower (fan high/low)	**29/30**	**37/41**	**NA**	**NA**	68/**60**
Stock cooler	36	52	42	57	67



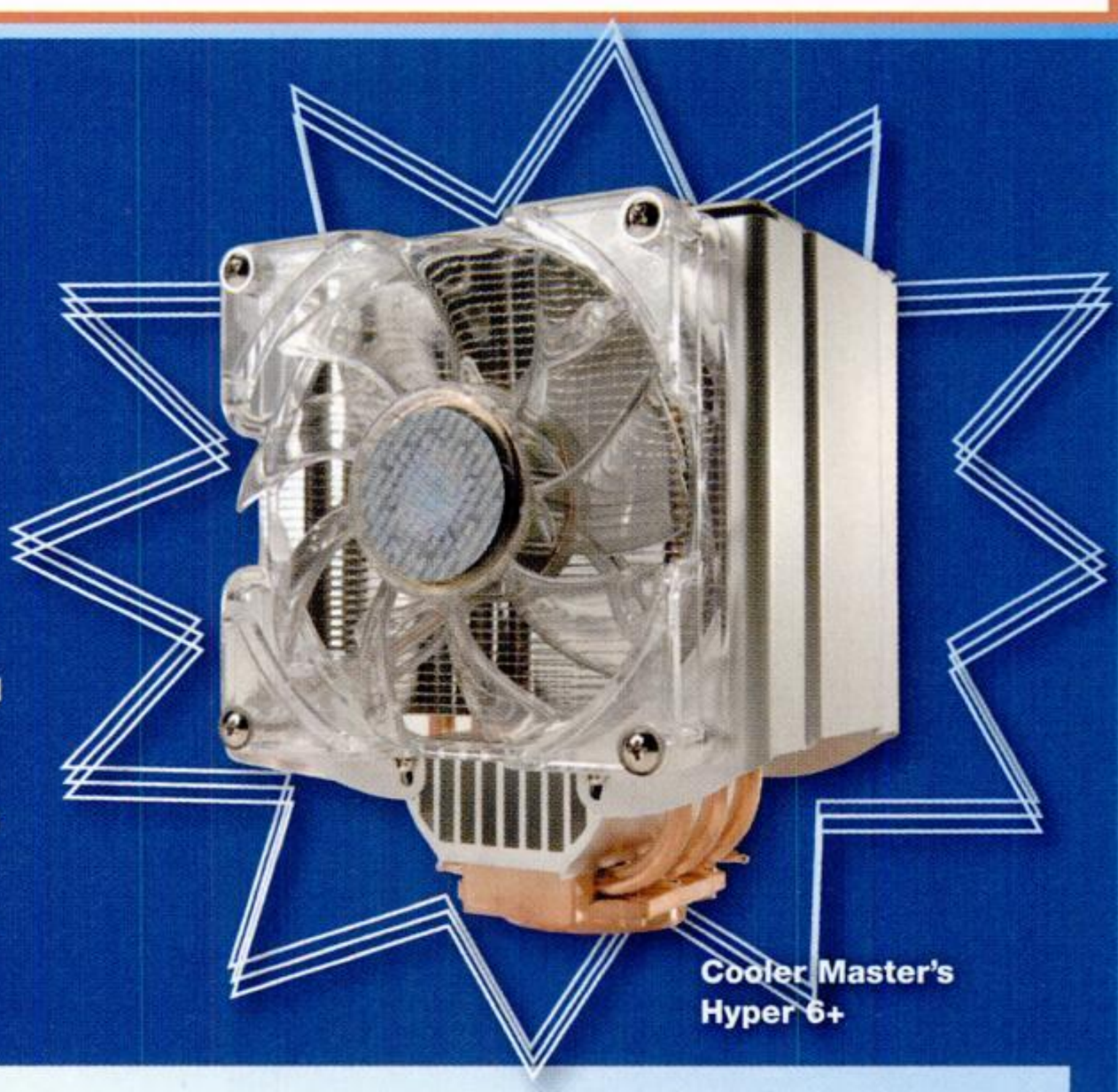
THERMALTAKE SILENT TOWER **7**

$50, www.thermaltake.com

AND THE WINNER IS...

Whew! This was a close contest. Several heatsinks left us thoroughly impressed, and we were surprised to have so many contestants fighting for top honors. When it came down to the final tally, we had to pick nits: We took into account the temps and sound output, considered installation difficulties, and sought counsel from our spirit animal. In the end it was clear that Cooler Master's Hyper 6+ is the top choice. We found this heatsink to be virtually without fault. Sure, it's huge and heavy, but we didn't encounter any clearance issues, installation was effortless, and the part delivered stunning performance. What's more, you can add a second 100mm fan for even more cooling power.

Thermalright's impressive XP-90 is the runner-up. Its compact size, great price, and excellent performance make it a contender for anyone who needs a cool CPU.



Cooler Master's Hyper 6+

AIR VS. WATER COOLING

When PC enthusiasts want to manage the heat generated by their CPUs and GPUs, the two most popular methods are air and water cooling. Each has distinct advantages. Air cooling, for its part, is considerably more affordable: The most expensive heatsink/fan combo in this roundup costs about $55—compare that with the $100-to-$250 price tags you'll find hanging on a run-of-the-mill, CPU-only water-cooling kit. Plus, CPU heatsinks are much easier to install: most of the time, you can just pop a unit onto the CPU socket and be done with it. There's no need to route tubing, you don't have to bleed lines, and there's no risk of spills or leakage. Lastly, air cooling is so popular that you'll have plenty of choices—it's a buyer's market.

Water cooling, on the other hand, is much more effective at reducing component temps. These high-priced kits are targeted at the enthusiast crowd—overclockers and extreme gamers—who tend to push their PC components to the limit. And these kits usually deliver on their promise, because when it comes to absorbing heat, water is not only more efficient than air, it also keeps temperatures more stable. The temperature of an air-cooled CPU, for example, might register an increase of 20 degrees Celsius under load. The temperature of a water-cooled CPU, meanwhile, might fluctuate by only five or six degrees Celsius under load.

Most users, however, will find it difficult to justify the cost and the potential snags associated with extravagant water-cooling solutions. As we discovered here, air-cooling kits can be highly effective and much less expensive. MPC

Get Back DELETED DATA

Emptied your Recycle Bin, quick-formatted your drive? You may be able to recover your files with this handy little tool

TIME 02:00 HOURS:MINUTES

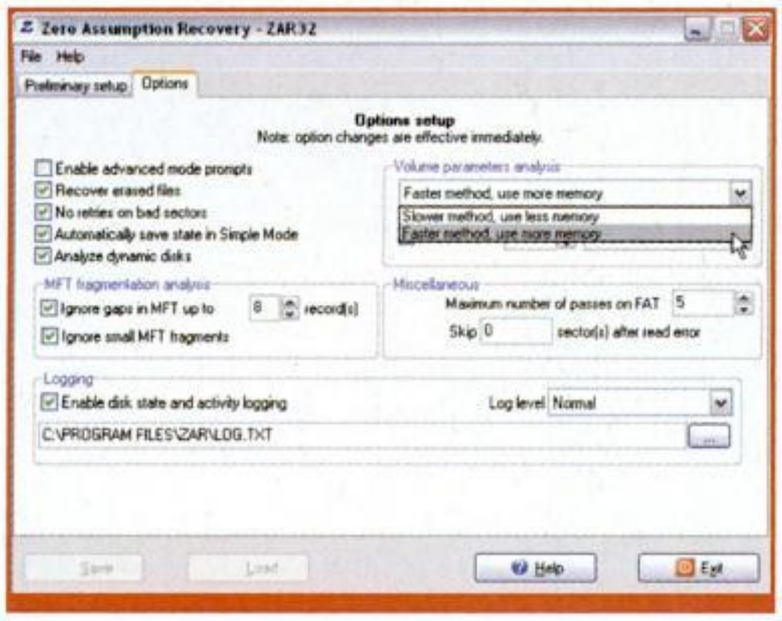
This just in from the "we make the dumbest mistakes so that you don't have to" department: I accidentally trashed my entire archive of digital photos—more than 9GB of shots, including 99.99% of all photos that existed of my twin 3-year-old daughters—by mistakenly quick-formatting the wrong drive in my PC. D'oh!

After some panicked rummaging, I discovered I had in fact done a DVD backup of my pics a few months ago, meaning I was only out a few month's worth of new pics, which just happened to include a birthday, vacation, and very important family event. S@#*%^T!

I fired up the 'net and after lots of research I discovered a little tool called *Zero Assumption Recovery*, the evaluation version of which is on the CD that came with this issue. In just a few quick steps, and an hour wait for the program to scan my 320GB drive, I had my lost photos back! Not only did it find the pics, but it also managed to recover the file names and folder structure—a feat several other similar programs could not match.

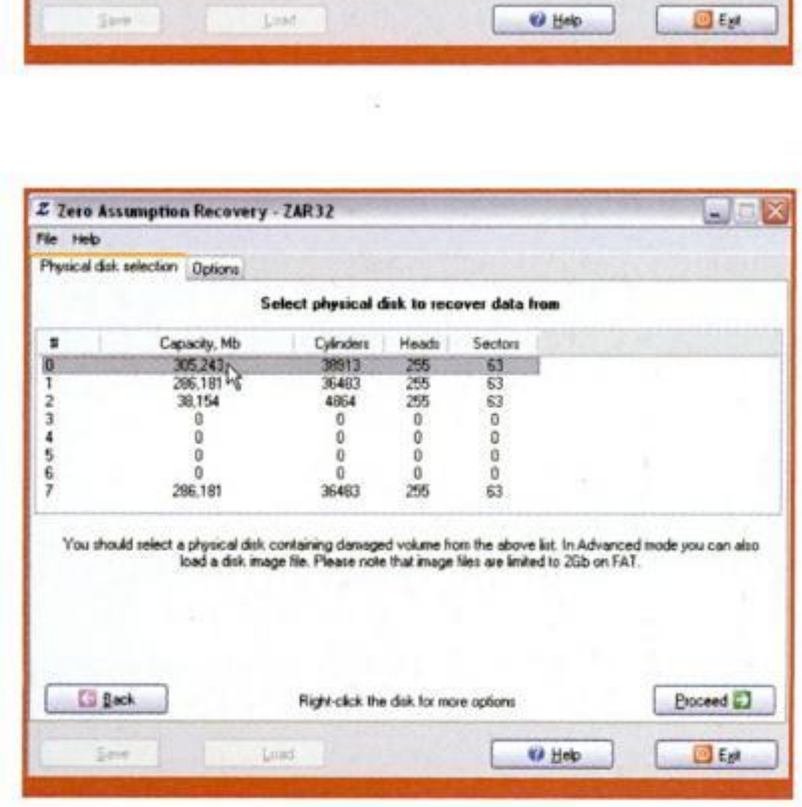
Whether you just want files you deleted from your drive, or data from a quick-formated drive, here's how to use *ZAR* to hopefully get them back.

BY STEVE **KLETT**



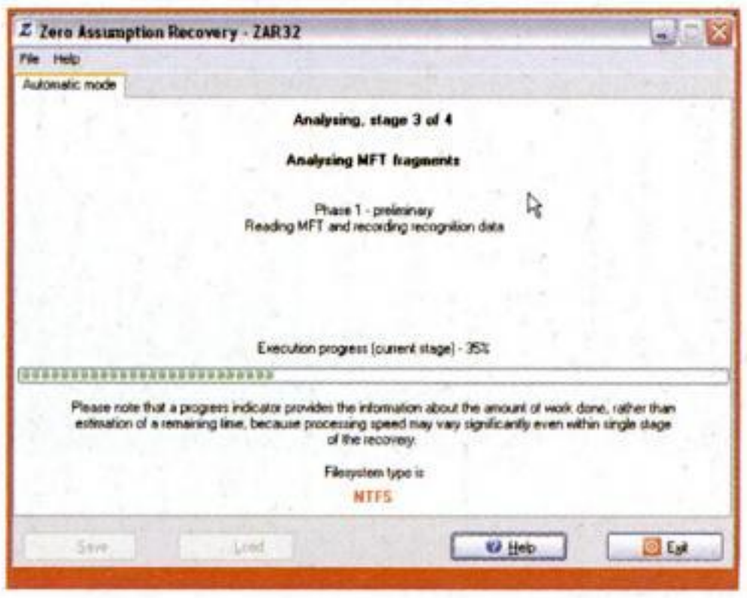
STEP 1.

Fire up the program—you can probably leave the default settings alone. However, if you have lots of system memory, select the Options tab and "Faster method" from the "Volume parameters analysis" pull-down menu. Go back to Preliminary setup and click the Proceed button.



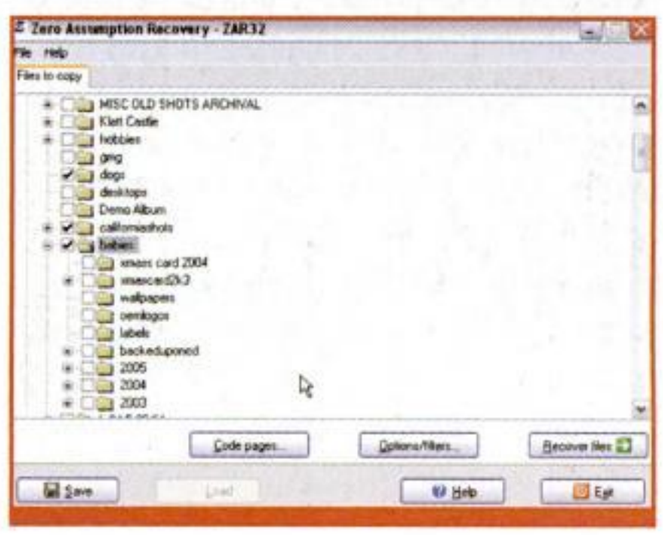
STEP 2.

Now, select the drive you want to scan for lost files by clicking on it; select Proceed. Next, select the partition on the drive that you want to search and click Proceed again.



STEP 3.

Waiting is the hardest part: Now, sit back and wait for the program to scan your drive, which may take a while depending on the size of the partition you selected.



STEP 4.

Whoop! If the stars are aligned in your favor, you will be rewarded with your old folder structure, which you can navigate to locate and restore your needed files. Note: the eval version only allows four folders to be recovered per scan, so you may need to repeat this procedure multiple times—or pony up the cash for the full version.

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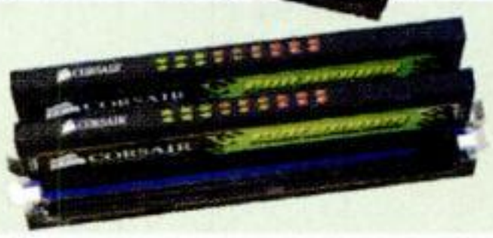

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